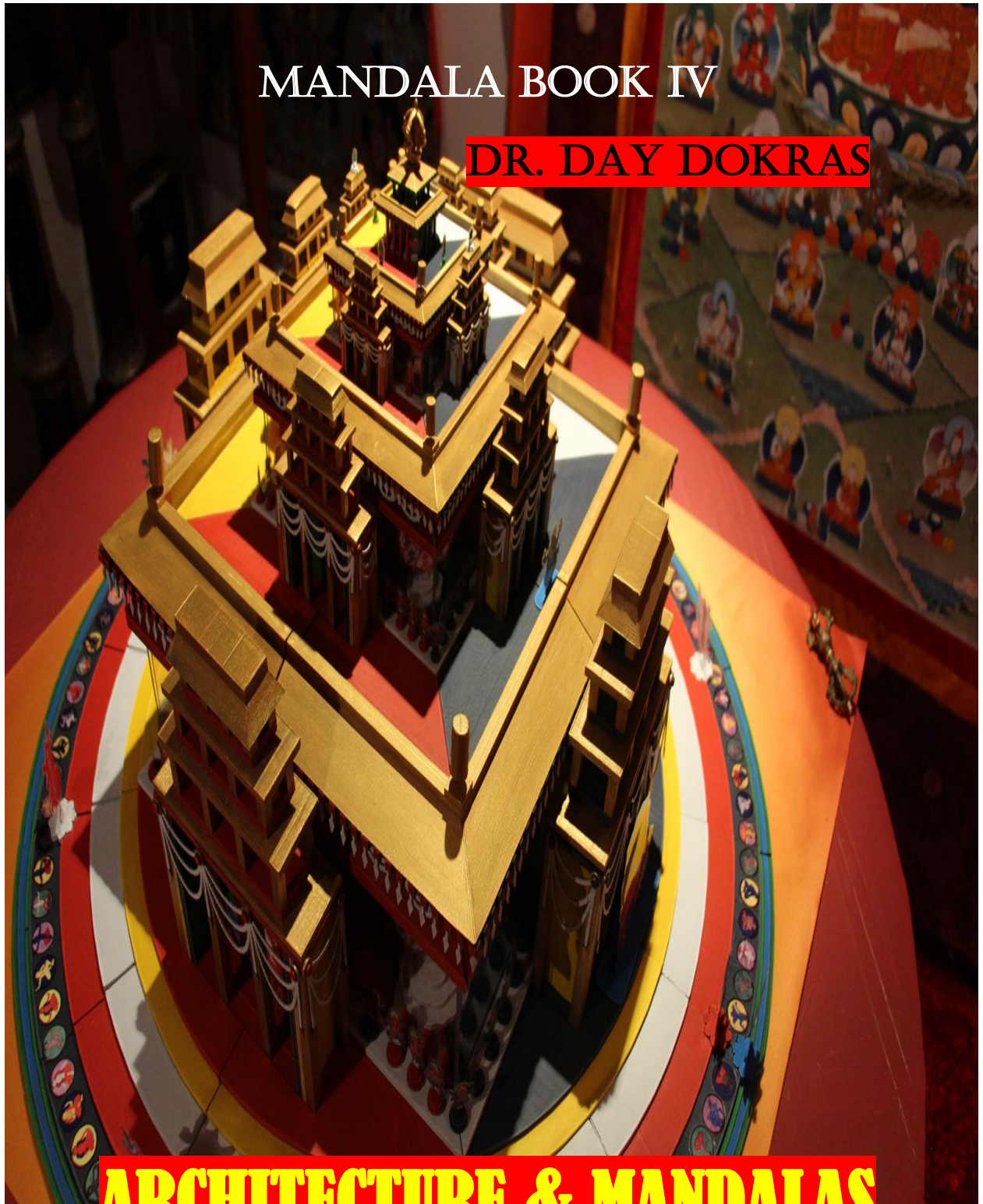


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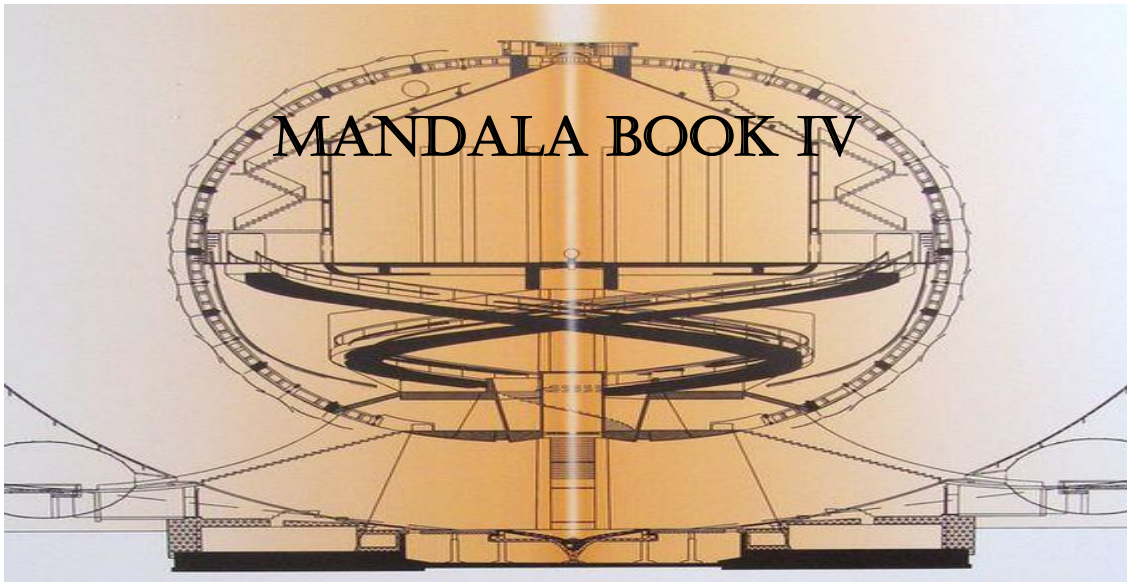
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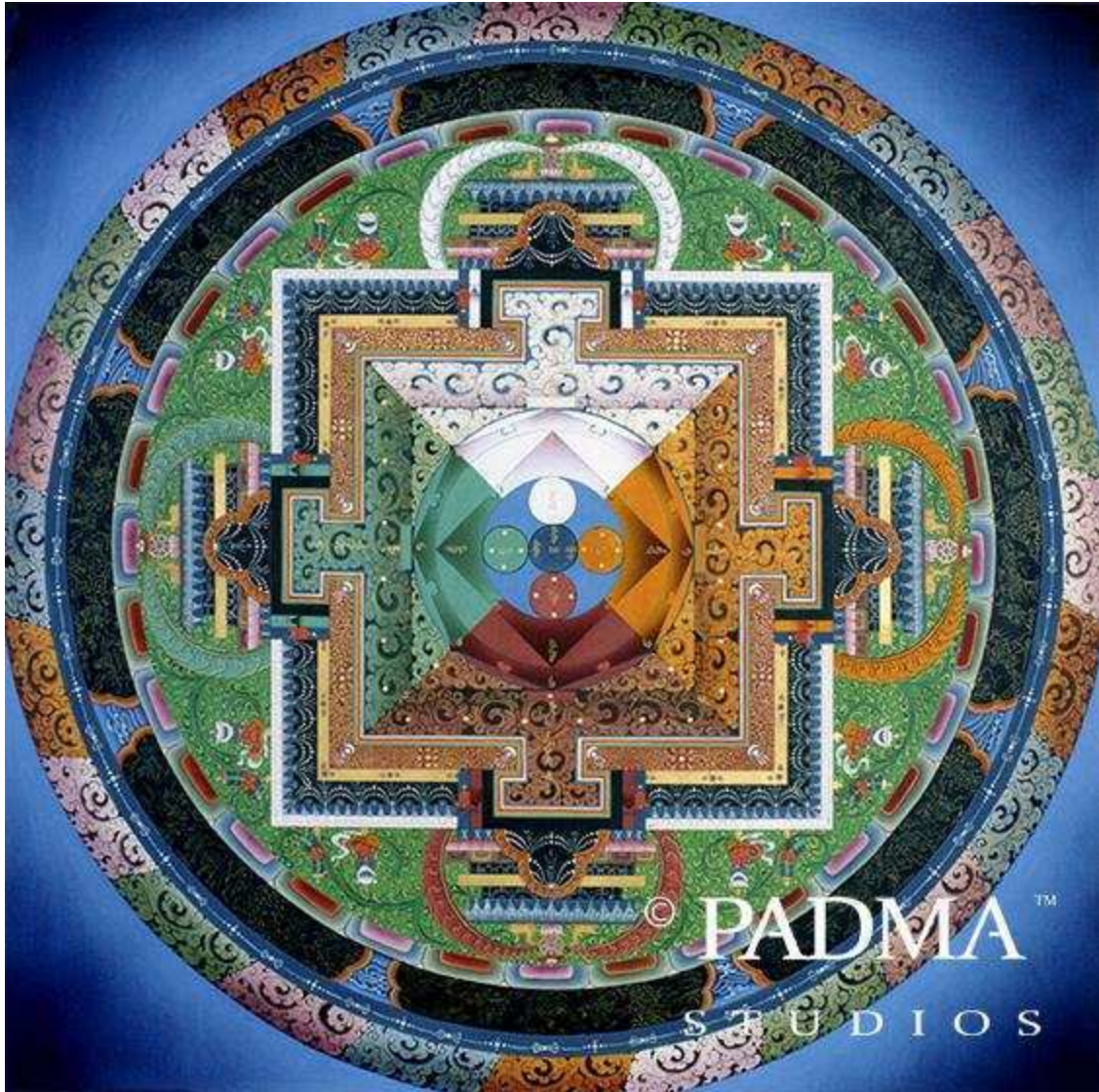
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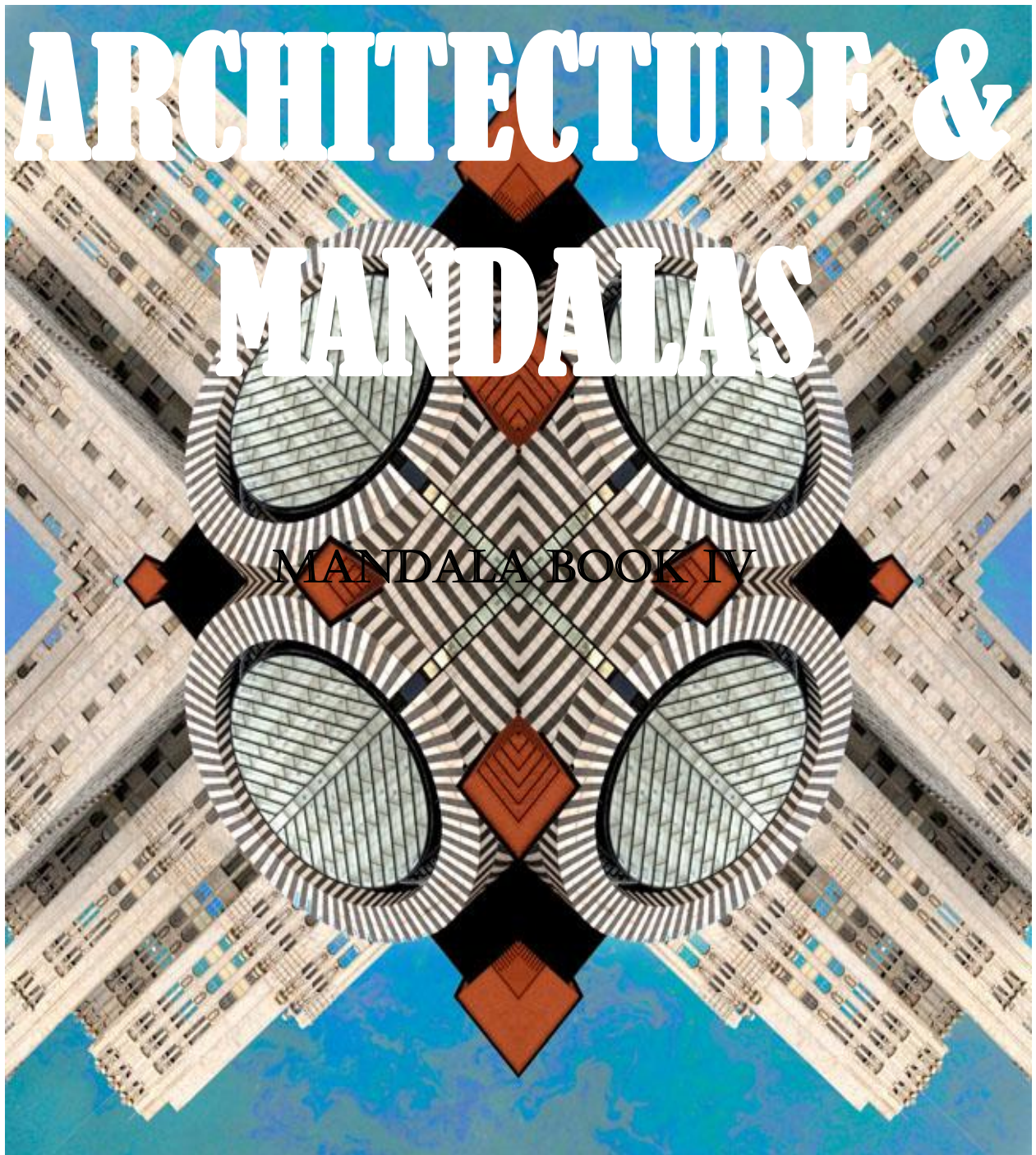
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Indo Nordic Author's Collective

Introduction	8
Chapter I Research – Bindu and Mandala as a model for Cultural and Sacred Architecture	11
CHAPTER II-Marvel At These Euphoric Architectural Mandalas	23
CHAPTER III-ELEMENTS OF INDIAN TEMPLES	
Mandala of the Hindu Temple Architecture	28
CHAPTER IV-Temple Vastu Shastra	39
CHAPTER V-MANDALIC COSMOLOGY OF THE JAIN TEMPLE	77
C H A P T E R VI-	
The <i>Vastu-Purusha-Mandala</i> in Temple Architecture	120
CHAPTER VII-The Mandalic Design of the 1000 Petal Temple	128
CHAPTER VIII-HINDU TEMPLE AND THE N BODY:	
COMPARISON	139
CHAPTER IX-Temple Gopuram as Cosmos & spiritual light house	159
CHAPTER X-The Borobodur Temple as a MANDALA	187
CHAPTER XI-The Temple as a MANDALA	205
CHAPTER XII-Celestial Significance of Angkor Wat-With rare paintings of the Temple-	221
Chapter XIII-Spiritual signification of Lotus flower in Chakras and Kundalini	254
CHAPTER XIV- Mandala of the Jain Cosmology	268
CHAPTER XV	
The concept of " Jambudeep" - In General	352
CHAPTER XVII-THE MANDALIC GEOMETRY OF HINDU TEMPLE	413
CHAPTER XVIII-Vastu Purusha Mandala Of Property	455
CHAPTER XIX- <i>Brahma Kamal -Fact and Fiction of this Celestial Plant</i>	482
CHAPTER XX	
The MANDALA OF LINES, DOTS IN Hindu and JAIN ARCHITECTURE	493
<i>Sacred Space in Ancient Indian Architecture:</i>	
<i>Form and Meaning by Ashish Nangia</i>	503
About the Author	506

INTRODUCTION

What is this deep-structure that surfaces time and time again?

For us in India, the answer goes back thousands of years. To the Vedic seers, the *manifest* world was only a part of their existence; there was also the world of the *non-manifest*. The forms and events of the perceived world are significant only to the extent that they help us understand the nonmanifest layers that lie beneath. Magic diagrams, called yantras, explain the nature of the cosmos. Of these, the Vastu- Purusha Mandala forms the basis of architecture. It has the potential for infinite applications and adaptations in the making of houses, palaces, temples and even cities.

Mandala is a spiritual and ritual **symbol** in Hinduism and Buddhism, representing the universe. The circular designs **symbolizes** the idea that life is never ending and everything is connected. The **mandala** also represents spiritual journey within the individual viewer. In Hinduism, **mandalas** are a tool to view the spiritual universe, and represent the cycle of occurrence, reoccurrence and existence. Many of these designs are symbolic of Hindu deities, such as Ganesha, Saraswati and others. For example, try placing **mandala** pillows on your sofa in the living room, the most social **place** in the **house**, where guests are usually greeted.

The Mandala itself has an architecture-The Architecture of Mandala

Kathy Grundei | Posted on Sunday September 18, 2016

“In short, no pattern is an isolated entity. Each pattern can exist in the world only to the extent that it is supported by other patterns: the larger patterns in which it is embedded, the patterns of the same size that surround it, and the smaller patterns which are embedded in it.”

Christopher Alexander

Design theorist, Emeritus Professor-Berkely

I create mandala designs when I seek time for quiet and meditation. I did not know how to put words to creating these designs until I came across Alexander’s quote about design. This quote is about architectural patterns, but the quote also describes the relationships found in mandalas.

A mandala is a complex abstract design of patterns that is usually circular in form. In fact, “mandala” is a Sanskrit word that means “circle”. Mandalas generally have one identifiable center point, from which an array of symbols, shapes and forms grow from. Mandalas can contain both geometric and organic forms. They can also contain recognizable images that carry meaning. They are great tools for meditation and increasing self-awareness.

Mandalas symbolize a state of mind. When I create my own mandala, I think of it as an snapshot of where I am “today.” The design makes “see-able” of the “unsee-able” of my spirit. I look inside myself and find the shapes, colors and patterns that represent something from my current state of mind to my deeply-desired wish for restoring harmony and balance. There is that satisfying element about having the freedom to choose whatever shapes and colors that I feel express my sense of self. They start with a center whose color, shape and pattern symbolize how my “center” might look at that particular time. From the center, my mandala designs flow out to support the beginning patterns. While single events in our life may seem chaotic, those events as a whole, reveal clear patterns. Looking for the patterns is a good way of doing a life check.

Alexander writes eloquently about design. I leave you with his criteria about what makes design or architecture harmonious. The universal truths about architecture also apply to living life in harmony.

- A range of sizes is pleasing and beautiful.
- Good design has areas of focus and weight.
- Outlines focus attention to the centre. harmony.
- The background should not detract from the centre.
- Simple forms create an intense, powerful centre.
- Small symmetries are better than overall symmetry.
- Looping, connected elements give unity and grace.
- Unity is achieved with visible opposites.
- Texture and imperfections give uniqueness and life.
- Similarities should repeat throughout a design.
- Empty spaces offer calm and contrast.
- Use only essentials; avoid extraneous elements.
- Designs should be interconnected, not isolated.
- Scale and echo create positive emotions.

SYMBOLISM of the Mandala



There are various forms of mandalas with distinct concepts and different purposes. The individual representations range from the so-called Cosmic Mandalas, which transmit the ancient knowledge of the development of the universe and the world-systems which represents a high point among Mandalas dedicated to meditation; to the Mandalas of the Medicine Buddha which demonstrates how the Buddha-power radiates in all directions, portraying the healing power of the Buddha.

The symbolism of meditation Mandalas has a rich tradition. The outer form of these so-called holy circles is a geometrical diagram, a *Yantra*, and each detail of its construction has symbolic meaning. The essence or purpose of the Mandala is concerned with the process of invocation, the calling in and realization of the spiritual force within the contemplator himself. All these different picture-tools have essentially the same inner meaning and purpose, but there are mandalas to suit all levels of consciousness: for the spiritually highly developed, for average people and for people not yet developed.



The

Cosmic Mandala

The Cosmic Mandala is encompassed by a flaming circle. At the Centre is a three-footed spiral symbolizing a first movement, surrounded by rotating wind which condenses into so-called basic elements, representing the states of aggregation: Wind or Air stands for the gaseous state; Fire is usually depicted as a red triangle and stands for transformation; Water for liquid, represented by a half-circle or circle; Earth for solid matter, symbolized by a yellow square or cube. The emerging forms of the elements are painted in the blue ring surrounding the Centre, in the lower sphere intimating the world-continents to be. The blue Ether represents the all pervading condition, the source of all elements filling the space of the Mandala. On it circles are drawn; looking like ellipses in their dynamic intersection, they portray the orbits of celestial bodies, painted in all the colours of the rainbow plus black and white and indicating the directions. These twelve astrological circles of the upper sphere demonstrate the movements of sun, moon and stars in the seasons.

Tibetan monks constructing a festival mandala with sand and the dust of precious stones. After the festival the mandala will be destroyed, thus expressing the insubstantiality of visible forms.

See The Kalachakra Mandala - the Wheel of Time Sand Mandala and His Holiness the Dalai Lama's explanation of the practice in the Kalachakra Initiation.

Traditionally the Kalachakra Initiation has been a closely guarded secret and the viewing of the mandala forms the culmination of a twelve day initiation ritual for Tibetan Buddhist practitioners. However, the Dalai Lama, recognizing the many misconceptions surrounding Tibetan Buddhist practice, began presentations of the Kalachakra Sand Mandala to the general public as a cultural offering.

CHAPTER I

Research – Application of Bindu and Mandala as a model for Cultural and Sacred Architecture. Jaffer Khan. 2017

This paper examines the concept of Vastu Purusha through “bindu” and “mandala” which have been the primary form generators in the architecture of several Asian cultures and particularly in India. Through literary resources this paper examines the ability of Sri Yantra to unpack itself into various progressive spatial geometries that have inherent relationships which attain its final form as the “mandala”, which is also known as the “mask of God through which eternity is to be achieved.” The “mandala” is the Hindu cosmic model through which the Buddhist cosmic thinking is evolved. The first part of this paper discusses about the mandala model and its systematic structure which inspires in constructing spatial systems that build architectural spaces. The pioneering practice for three decades in architecture forms the basis of practice based research methodology. This will examine the real time architectural projects that demonstrate how the various elements of nature that manifests within the mandala and the geometries help generate an ephemeral form as a symbol of spirituality and awakening of consciousness. The objective of this paper is to present the work on a “Peace Museum” project in Srilanka which bridges the spiritual philosophy of Hindu-Buddhist culture, where the mandala evolves a paradigm for a contemporary architectural thought associated with the sacredness of built spaces.

1. INTRODUCTION

Almost all religious theories of the oriental civilization believe in the existence of a center from which everything instigates. This center is a point called the bindu. In Sanskrit, it is also referred to as ‘dapsa’ and ‘avayava’ meaning the physical body. Originally, the Supreme Reality represented by the symbol of the universe is the bindu as a central point of a circle or a triangle. It is the manifestation of creative dynamism. It also means the vibratory sound – the cosmic sound that relates to unconditional consciousness. In Hindu philosophy, the “bindu” forms the central part of mandala which is the cosmic model that organizes the spiritual world. For centuries, this formed the basis of creating architectural spaces through the construction of temples and other religious cultural structures. The model interweaves natural elements essential for human survival and healthy spatial organization.

The present research is the continuity of work since 1980 when the first temple of Vellore was documented as part of a student project. Further literary interest in bindu and mandala led to the investigation of these principles through practice and the maiden venture was the IGNCA Cultural Center in New Delhi in the year 1986. Though partially successful through practice, the concept of “bindu and mandala” has a great potential in the realm of sacred architecture and can reinvigorate architectural spaces to bring sacredness and well-being.

Keywords: *Bindu, Mandala, Culture, Built Environment, Sacred Architecture*

2. MANDALA AND THE BINDU

In Tantric philosophy, the moon or the bindu is also associated with the basic concept of the bindu. Drops of dew located in the pinnacle of the body i.e. head is believed to be a manifestation of the bindu. The goal of the person practicing yoga is to attain liberation or moksha as a result of which the dew drops which are as cool as the moon melts and flows through the entire body.

Voidness or sunnya is also represented by the bindu as it occupies a minute unit of space in a unique place.

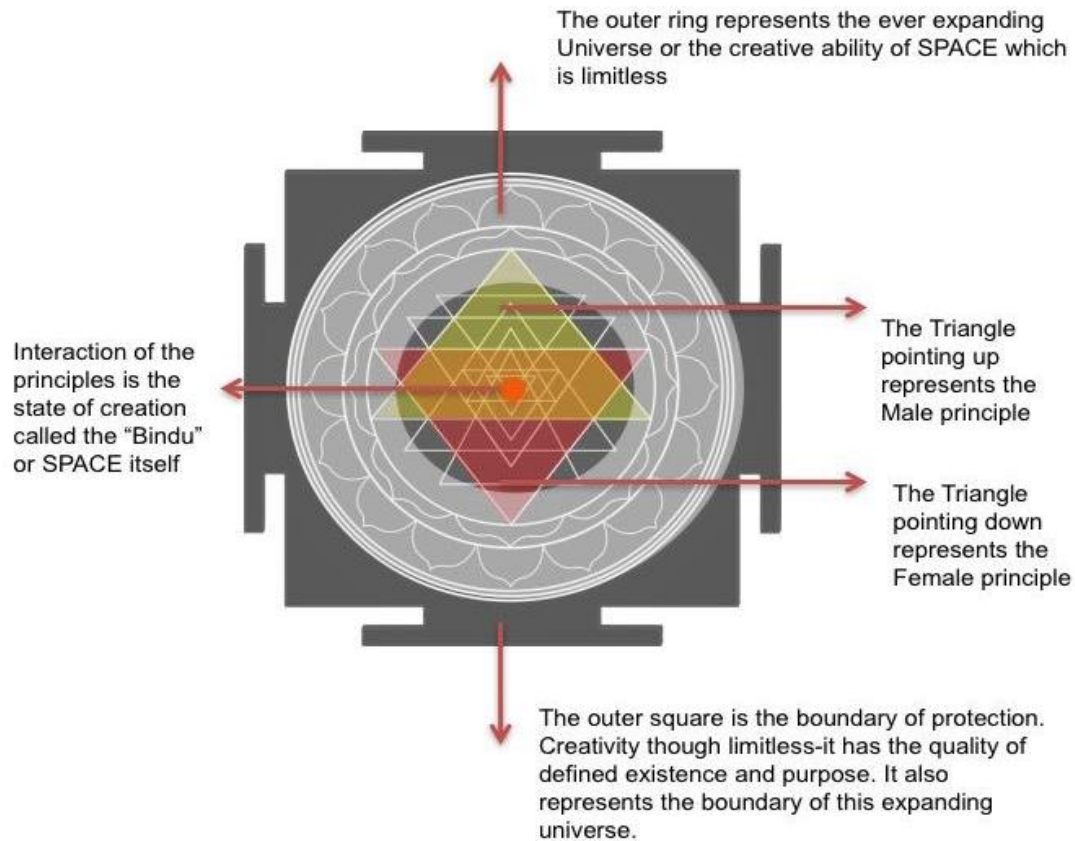
The second most important component of the mandala diagram is the nabhi. Nabhi or navel is the straight line that is generated when the bindu moves in a particular direction. Bindu or the center of the universe or of the body is considered to be the nabhi. This is also defined as the hub of a wheel i.e. Nabhi Chakra which comprises of three parts. Firstly, the center point around which everything revolves called the bindu. Secondly, the thick circular part to which the spokes of the wheel are fixed. And thirdly, the spokes itself or aras. [1]

According to the Vaishnavite mythology, Lord Vishnu or the protector of life is also referred to as Padmanabha (Padma – lotus), which means “one with lotus flower sized navel”. [2] It is believed to be the center of creative energy. The phenomenal universe is symbolized by Lord Brahma also known as God of creation emerging from the navel of Lord Vishnu. Some cultures in the oriental region believe that the mandala is represented as a lotus. The lotus, when represented as a central portion of the chakra, exposes three divisions –the karnika or the pericarps, the kesara or the filament and the petals. Hindu mythology regards the lotus as a symbol of the pedestal or the throne of Gods.

In the practice of yoga, the ultimate aim is to focus the concentration on the central point of the nabhi to attain a greater level of realization. The third major component that forms the mandala is the chakra, which is nothing but a circling wheel with a center and circumference. It is the symbolical representation of the universe. The center of the wheel, which represents complete emptiness, is imagined to possess the characters of dukha (pain) and sukha (pleasure) symbolized by black and white respectively. [1]

3. THE SRI YANTRA AND THE BINDU

Nine interlocking triangles around a bindu represent the Sri Yantra. It is also called a Navayoni Chakra because of the presence of nine (nava) triangles (yoni). Out of these nine triangles, five of them point downwards symbolize Sakti (feminine energy) and the remaining four points upwards symbolize Siva (masculine energy). The Sri Yantra shows the various stages of Sakti's descent in expression



VANTRA

Yantra representing the "Evolution of Life and Involution of Life"

Figure 1. The Sri Yantra representing the "Evolution of Life and Involution of Life"

The para bindu is the first stage of manifestation represented by a point being the nucleus of condensed energy. It represents the static and dynamic aspects of Siva and Sakti in one. Creation begins when this transforms into apara bindu when the center swells and becomes a form of a triangle. The interaction between the static and dynamic energy results in the formation of a triad – the Mula – trikona or the triangle. [3]

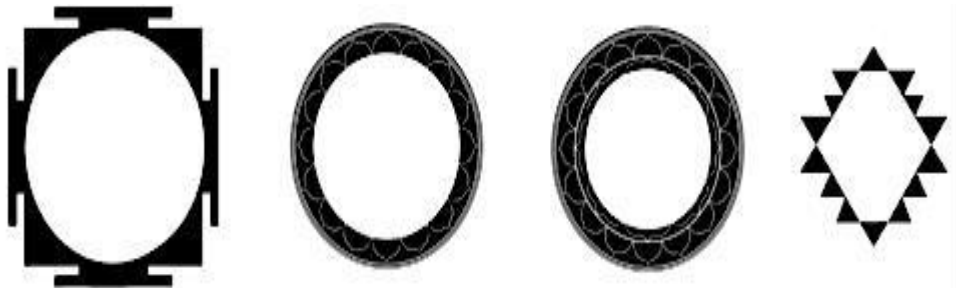


Figure 2. (From Left to Right) Trailokya- Mohana Chakra; Sarvasaparipuraka Chakra; Sarva- Sankshobhana Chakra; and Sarva- Saubhagyadayaka Chakra

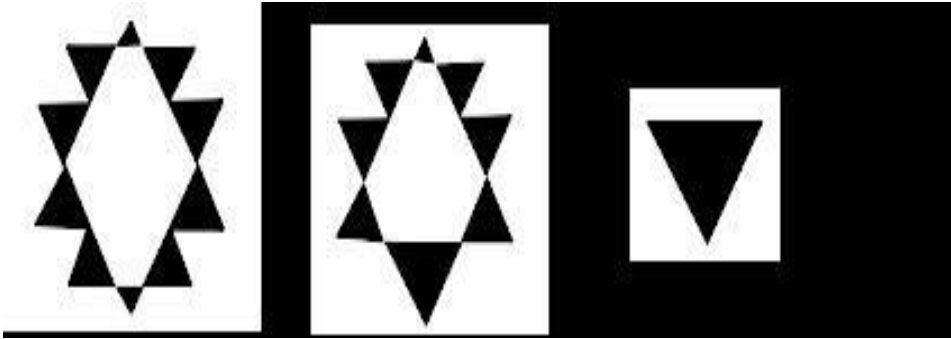


Figure 3. (From Left to Right): Sarvartha- Sadhaka Chakra And Sarvarakshakara Chakra; Sarva- Rogahara Chakra; Sarva- Siddhiprada Chakra; and Bindu: Sarva- Anandamaya Chakra

There are nine circuits that constitute the Sri Yantra from the outer plane to the bindu. The outermost periphery of the yantra consists of four gates located in the centers of the sides of a square and these are coloured white, red and yellow. Also called bhupara this is the ground plan of the Sri Yantra. There are three concentric circles inside the square called mekhala. The space between the square and the circles is the Trailokya-mohana or the Enchantress of the Triple World and this represents the stage when one is infatuated by objectives and wishes. Sarvartha-saddhaka meaning Accomplisher of All Purpose and Sarvarakshakara meaning Giver of Protection represent a period of self-realization and these two chakras are constituted of ten triangles each. Sarva – rogahara or the Remover of all Desires and Ills is the next chakra constituting eight triangles and represents the period of the inner circle of realization after freeing oneself from worldly ties. The Giver of All Accomplishments or the Sarva-siddhiprada is the stage just before realization and is represented by an inverted triangle. Colouring all the triangles red as they represent radiant energy reflects the dynamism.

The culmination results in the last chakra, which is the bindu itself known as Sarva-anandamaya, which means Full of Bliss. This is the state when one participates in the union. This is represented as colourless as the point is light itself. [3]

4. VASTU PURUSHA MANDALA AND THE BINDU

Vastu Purusha Mandala can be explained as the diagram of the universe in miniature. The word mandala in Sanskrit means a circle. It can be explained as a cosmic diagram that possesses radial symmetry. Purusha can be explained as a cosmic man, an embodiment of pure consciousness. Also represented as a masculine divine he is contained in a square grid showing his union with the feminine divine or the Earth Mother.

Thus, Vastu Purusha Mandala can be explained as a harmonious unification of the masculine divine and the feminine divine or the cosmic energy and the earth energy respectively.

The Vastu Purusha Mandala contains a minimum of nine sections signifying the directions north, south, east, west, northeast, northwest, southeast, southwest and the center represented as square grids. In the Vastu Purusha Mandala, the Purusha's head is located in the northeast direction and this is considered utmost sacred. In the southwest are his feet and his knees and elbows in the

northwest and southeast. Kept open and clear in the center part of the diagram are his main organs and his torso. Starting from a single undivided square of 1 x 1 there are grid patterns ranging up to 32 x 32 thus making it 1024 sections. [4]

Architecturally, the adaptation of the Vastu Purusha Mandala has been seen in the design of houses, palaces, temples and even cities. Integrating it into the design brings a certain amount of order in the design. Here, the squares are assumed as cubes of architectural spaces. [5]

The five elements of earth, water, fire, air and space correspond with specific sections of the Vastu Purusha Mandala. The south-west direction is associated with the element of earth(Bhumi); south-east with the elements of fire (Agni); north-east with the element of water (Jala); north-west with the element of air (Vayu) and the center space with the element of space (Akasha) [4].

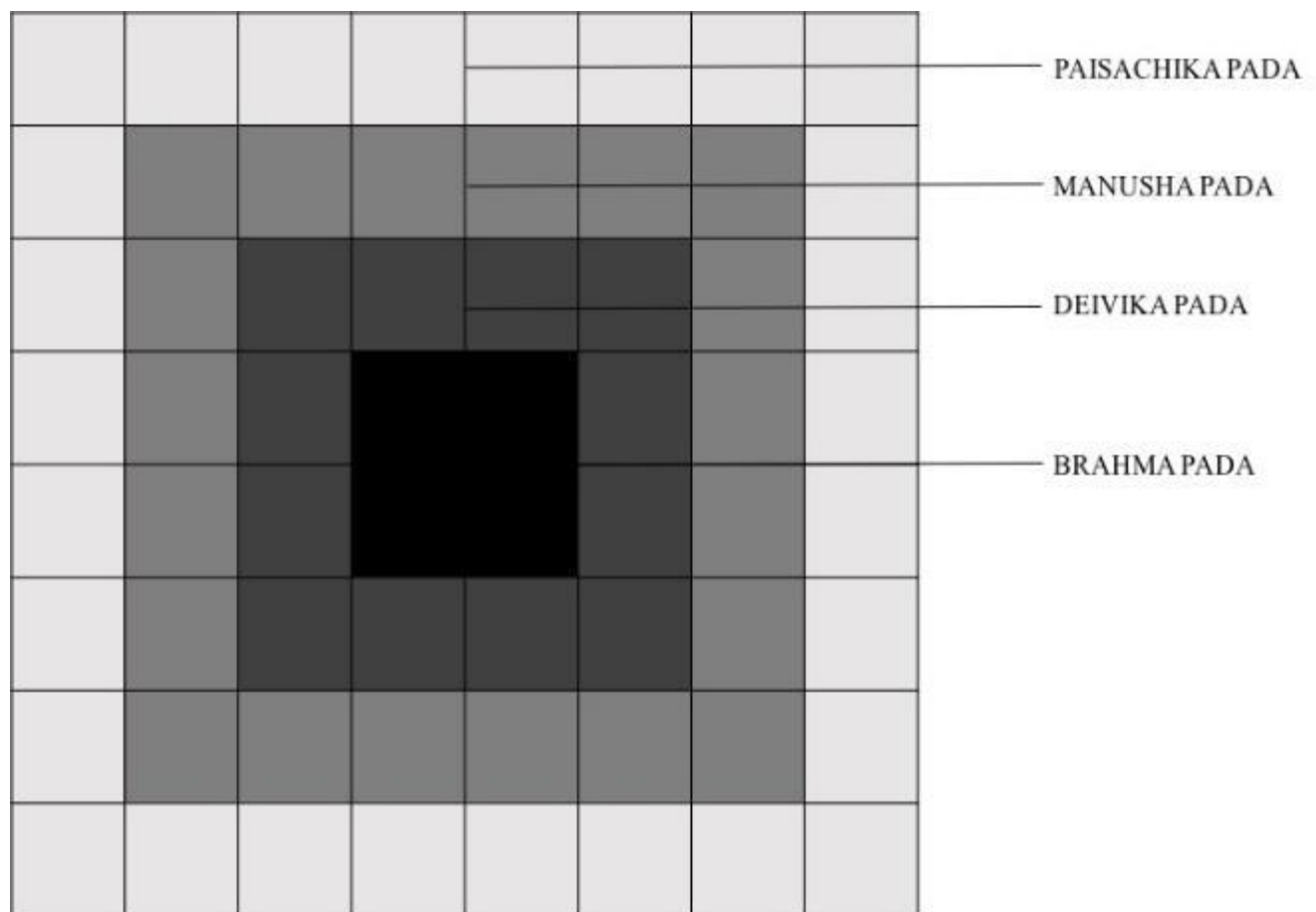


Figure 5. Manduka Purusha Mandala Showing the Concentric Zones of Energy

The commonly used ones are the 8 x 8 and the 9 x 9 grids. The 8 x 8 grid also called the Manduka Vastu Mandala is used mainly in temple architecture. The 9 x 9 grid also called the Parasayika Vastu Mandala is used for the design of residential spaces and spaces other than temples. The center of the mandala is both sunnya (the absolute Void) and bindu (the source of all energy). Located here is Lord Brahma (The Supreme creator). [5]

The term Pada in Sanskrit means the section of the energy grid pattern in the Vastu Purusha Mandala. There are concentric padas of energy in the mandala. The primary source of energy that is highly charged is in the center called the Brahma Pada. The Deivika pada around this is the luminous space. These two padas should be kept free of no walls. The conscious space or the Manusha Pada surrounds the Deivika Pada. Finally, the material space encompasses all of it and is the Paisachika Pada. These two padas are for the built structure and human occupancy. [4]

5. MANDALA AND HINDU TEMPLE ARCHITECTURE

Although there have been various arguments by authors of Indian temple architecture like Stella Kramrisch and Michael W. Meister about the applicability of the Vastu Purusha Mandala as a governing device for temple architecture, it is safe to say that for formulating the layout of the temple, the Vastu Purusha Mandala has been an imperative tool. [6] Though the 8 x 8 grid or the Manduka Vastu Mandala has been used in various temples of Indian architecture, it is to be noted that regional differences have played a major influence on the workability of the mandala design throughout India. [7]

Customarily, mandalas were spaces for the symbolic consciousness of universal theories which help in the awakening of the individual psyche. [8] The mandalas can be thought of as diagrams that function as a cue to reach a contemplational state which is the primary aim of the tradition. [9] The form of the temples that are based on the regulating lines of the mandala were meant to create spaces that bring about a “physical and spatial” communion between God and man. [10]

6. MANDALA AND BUDDHIST TEMPLE ARCHITECTURE

The mandala in Buddhism is a cosmic model depicting Buddha’s dwelling place as the center of the universe. Like in the Hindu temples, the structuring of the Buddhist temples has also been predominantly based on the spiritual model of the mandala. Illustrations can be seen both in the form of two-dimensional mandalas as well as three-dimensional mandalas. The two-dimensional mandalas which are drawings composed of squares and concentric circles could be temporarily painted on various material or drawn on the ground or sand or other natural substances using coloured powder. Customs involving ceremonious gatherings along with prayers and chantings while drawing the mandalas are believed to alleviate difficulties and be of greater good to an individual or a community. These ceremonies could even last up to a number of days. [11]

Three-dimensionally, the mandala diagram becomes a visual model of the built environment. In the Buddhist worship place, the central space is significant having a statue of the Buddha fronted by a worshipping space surrounded by walls. This is encircled by a circumambulating space. The circumambulation pathway is a space of psychological awakening before reaching the spiritual pinnacle. [12]

7. INDIRA GANDHI NATIONAL CENTER FOR THE ARTS, 1986, NEW DELHI – COMPETITION DESIGN (1985 – 86)

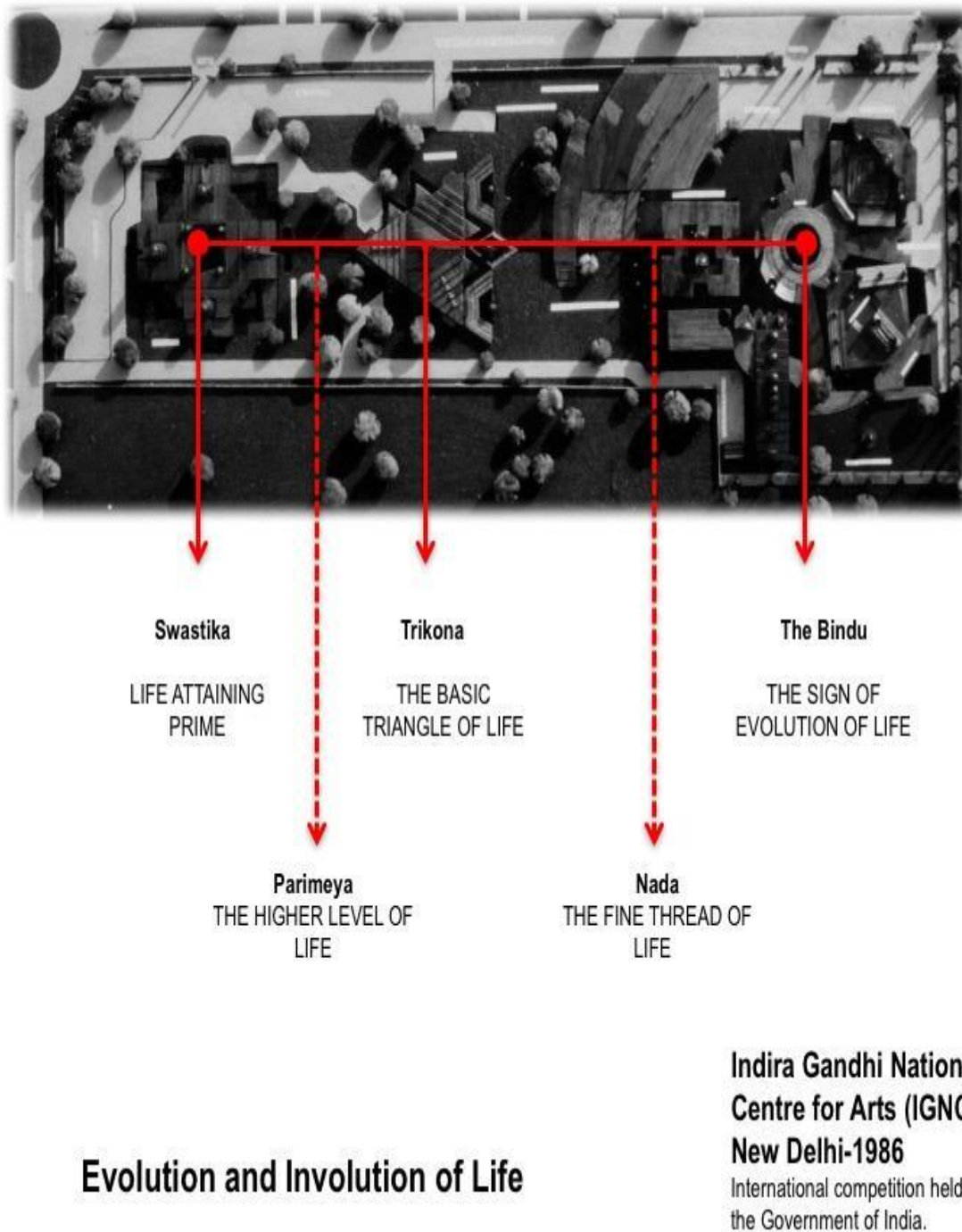


Figure 6. Proposed site plan of IGNCA, New Delhi

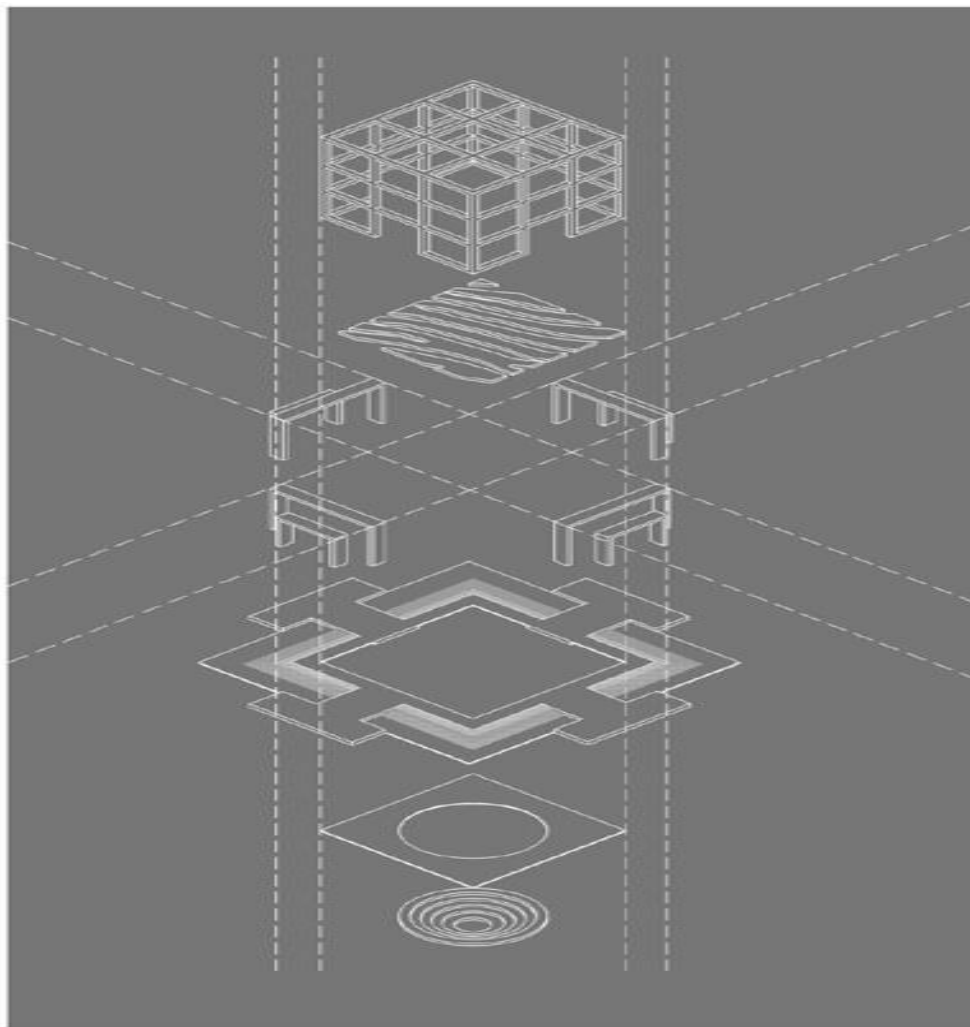
The IGNCA was a pioneering work by author1 which involved intensive experimentation on the phenomenology of the Sri Yantra. The idea of “Evolution of life and Involution of Life” with interconnecting courtyards to bring life to architecture has been attempted in this competition project. Bindu here is the propelling force generating space and life.

8. THE HINDU AND BUDDHIST MANDALA – A SPECULATIVE PROJECT – PEACE MEMORIAL FOR THE TAMILS, SRI LANKA (2014)

The continuing search for the mystery of sacral space by author¹ led to an experiment on a speculative project called the Peace Museum for the Tamils in Sri Lanka. The Tamil peace memorial, proposed to be built in Mullaitivu, Sri Lanka, which was controlled by the LTTE and was witness to many killings of the Tamils during the civil war.

The mandala is of significant importance in both Hinduism and Buddhism. Both religions adopt the mandala as a peaceful and creative symbol. Hence, the speculative project finds a balance to build a memorial, which will signify peace and harmony of the Tamil community. The scale of the mandala here is monumental imposing the idea of spirituality and peace. Contemplating the mandala does not only provide insight into reality, the Cosmos but also communion with it.

Mandala is the mystery that pervades all existence. Mandala alleviates suffering individually as well as in society. Contemplation can help overcome antagonism, conflict, stress and even war. Bindu as a symbolism is the beginning of the process that culminates into a mandala.





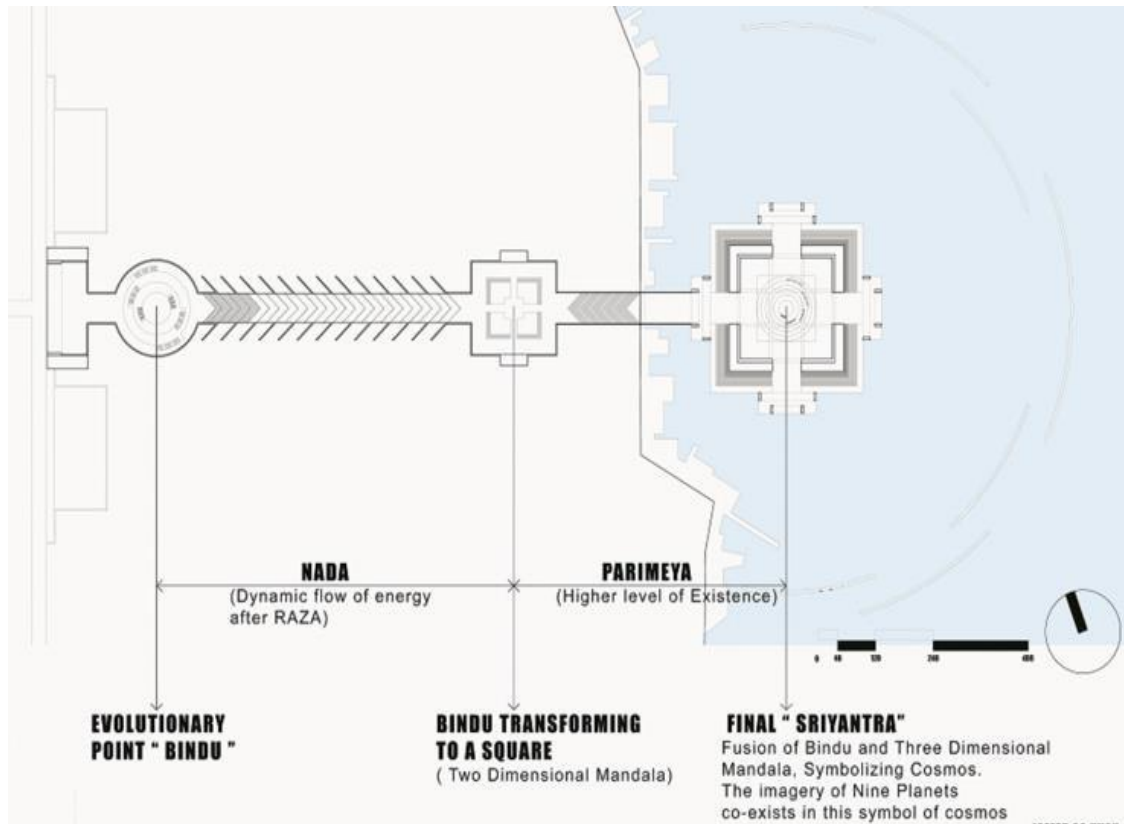


Figure 9. Proposed plan explaining the evolution of the Bindu, Mandala and the Sri Yantra

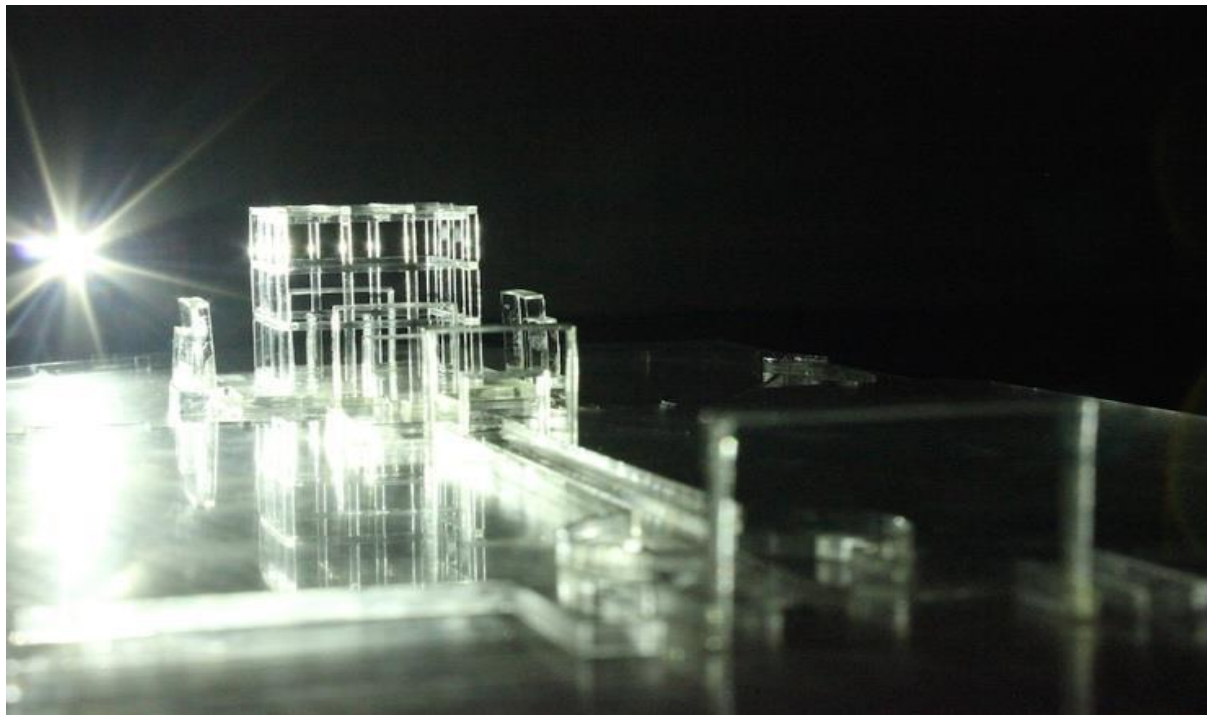


Figure 10. Study Model of the Memorial proposal

Here the mandala and the bindu is in three-dimension with the mandala rising above the sea level to be a visual spectacle defining the solid cube and its framework. The ritual pathway from the entry point contains the narrative and progresses to the main mandala. The plan of the museum is the Sri Yantra which is the representation of life from bindu and the unfolding universe. The memorial is primarily a cultural model represented through the mandala. [13]

9. CONCLUSION

The position of the bindu in the Vastu Purusha Mandala as the seat of Lord Brahma symbolizes creative life. The process of bindu as a point and reaching the ultimate form of a mandala signifies the bindu's transformation to mandala and back. This proves the theory of 'Evolution and Involution.' Bindu and mandala have inspired artists and architects in isolation. But the author experiments with the process itself by manifesting the philosophy through architectural form finding which is significant to spirituality and the context of the practice.

The study of bindu and mandala and its interpretation into architecture can be a convenient way theoretically to root the design in tradition. It is important to balance this transformation to architecture with contemporary design. Without careful consideration, the outcome could be superficial.

In architecture, sacral space can exist everywhere whether it is religious or non-religious. It becomes a difficult task for architects to create this space which takes on different meanings in different situations. It is culturally fluid and socially adaptable. Such a space is a meaningful fourth dimension of architecture which is both visible and invisible. And the most potent definition to support this idea can be found in Vedas, which defines this space as, "Space is that, which accommodates space".

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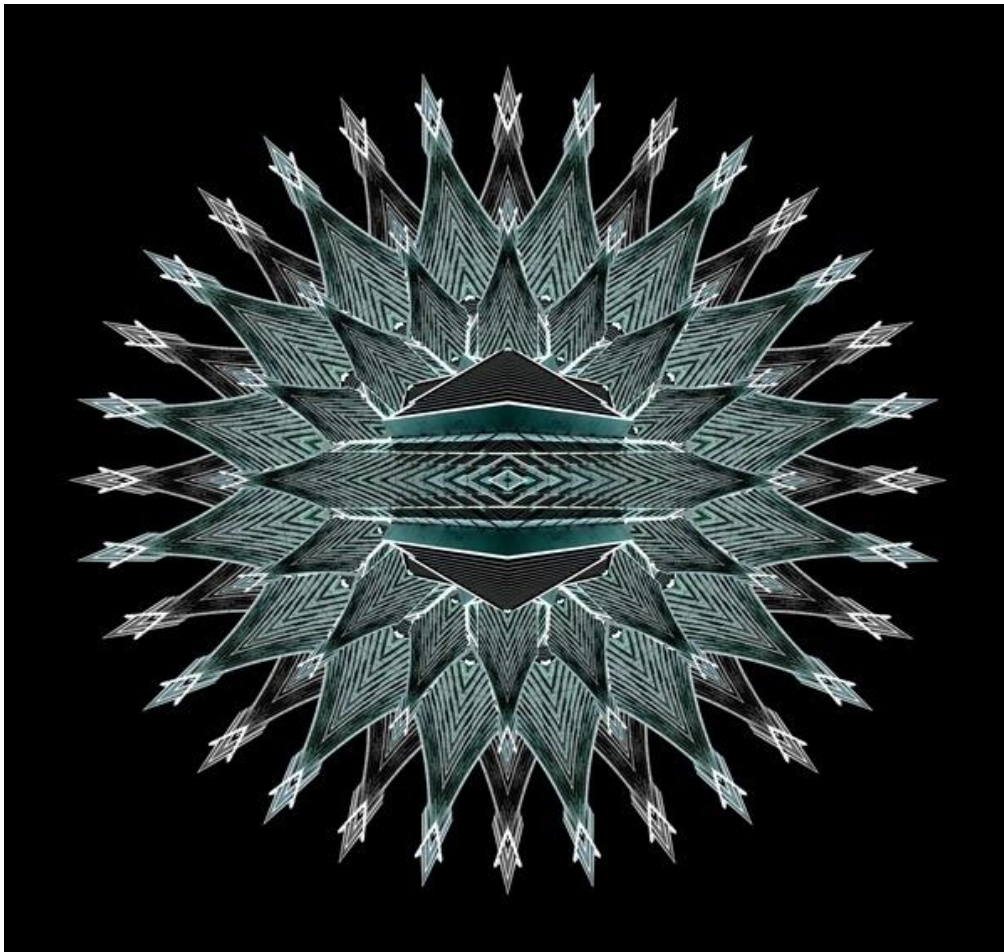
Deepika Varadarajan: Research Associate, Jaff Design Studio, Bangalore

CHAPTER II

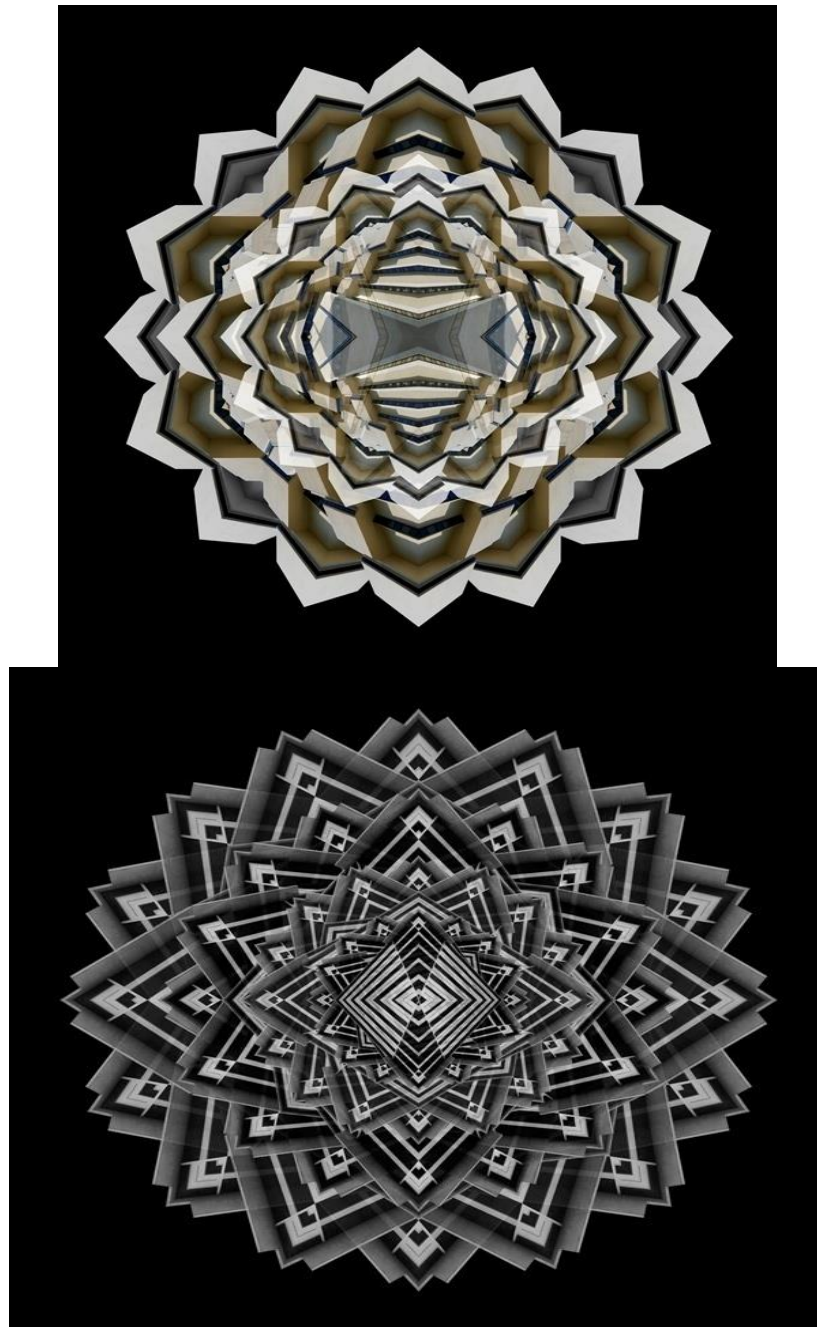
Marvel At These Euphoric Architectural Mandalas

When skyscrapers become heaven-scrapers. Bogar Alonso

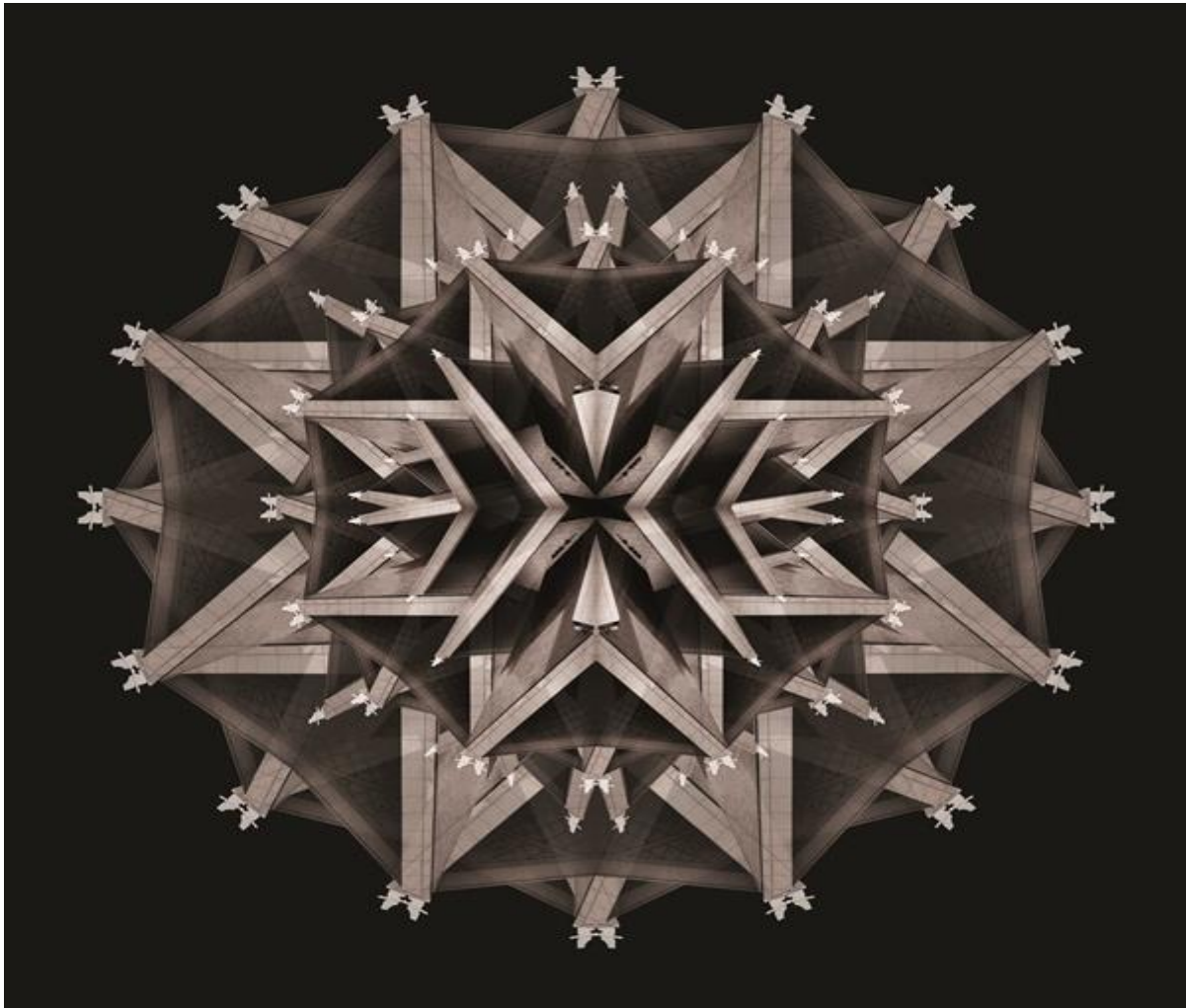
It's cosmically fitting that architectural artist Khairul Izhar Husni hails from Kuala Lumpur, Malaysia's most populous city and home to the tallest twin buildings in the world, the Petronas Twin Towers. As with our undying obsession to raise our homes to the heavens, Husni's *Euphoria* series intersects the spiritual with the architectural. Mandalas, at their most basic understanding, are circles. But, in reality, as Husni explains can serve "as a spiritual teaching tool." Traditionally, they're "spiritual and ritual symbols in Hinduism and Buddhism representing the Universe." Mandalas have a habit of making their way into every imaginable cultural device, from our stop-motion video diaries to the title of a *Breaking Bad* episode.

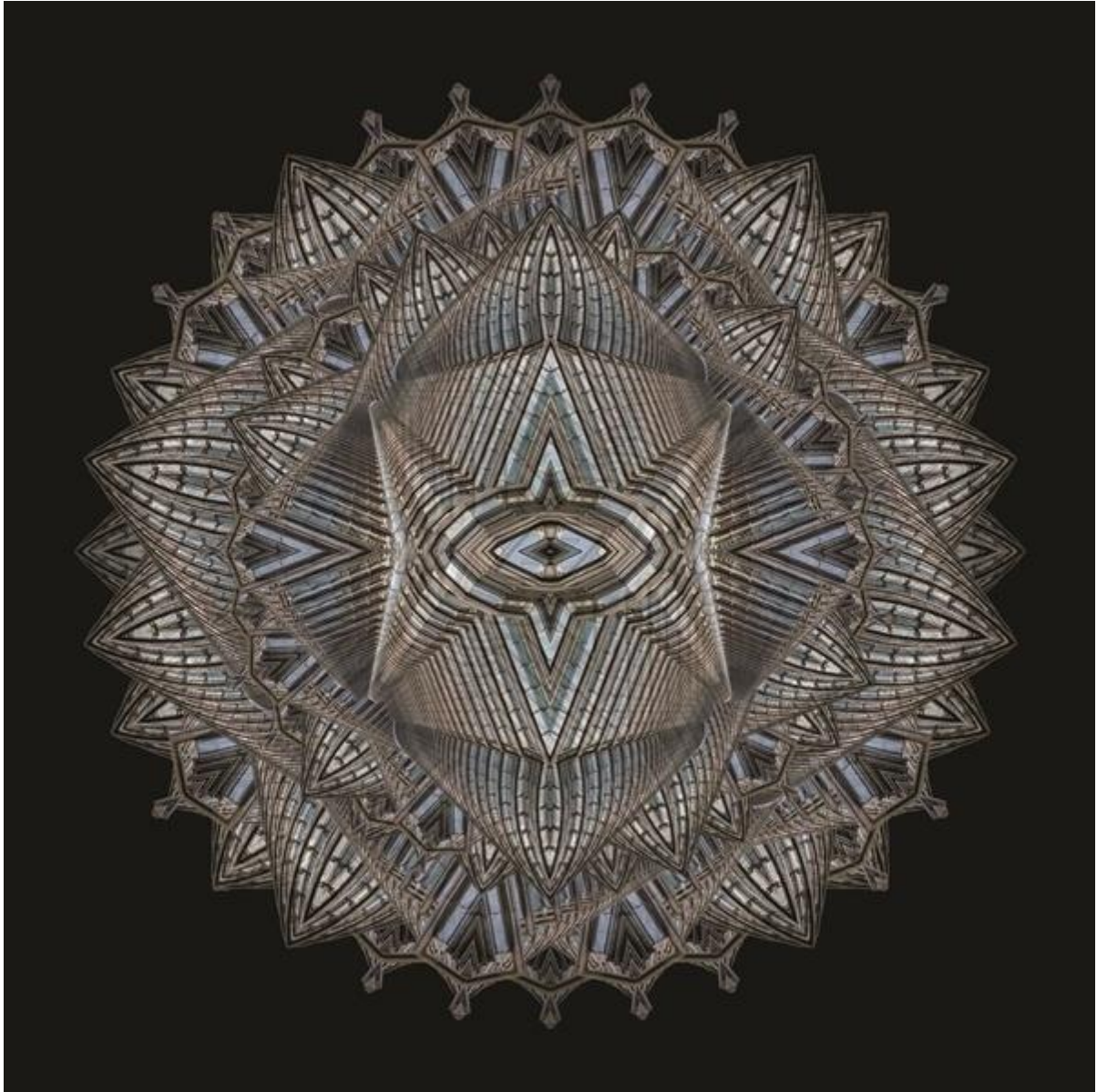


Using a simple digital camera to snap pictures of buildings, keeping an eye out for interesting lines, grids, forms, and shapes, Husni then runs them through Photoshop. In the program, he repeats the aesthetics he enjoys, which comes from an influence of Islamic art, which itself can lean toward geometric design.



As Husni explains, “in various spiritual traditions, mandalas may be employed for focusing attention.” This, in turn, can lead to a sense of euphoria which has “been cited during...religious or spiritual rituals and meditation.” And, it’s where he arrived at the name for the series. Currently, the *Euphoria* series consists of three sets of five mandalas but Husni expects to make other sets for a whole next series. The universe awaits.







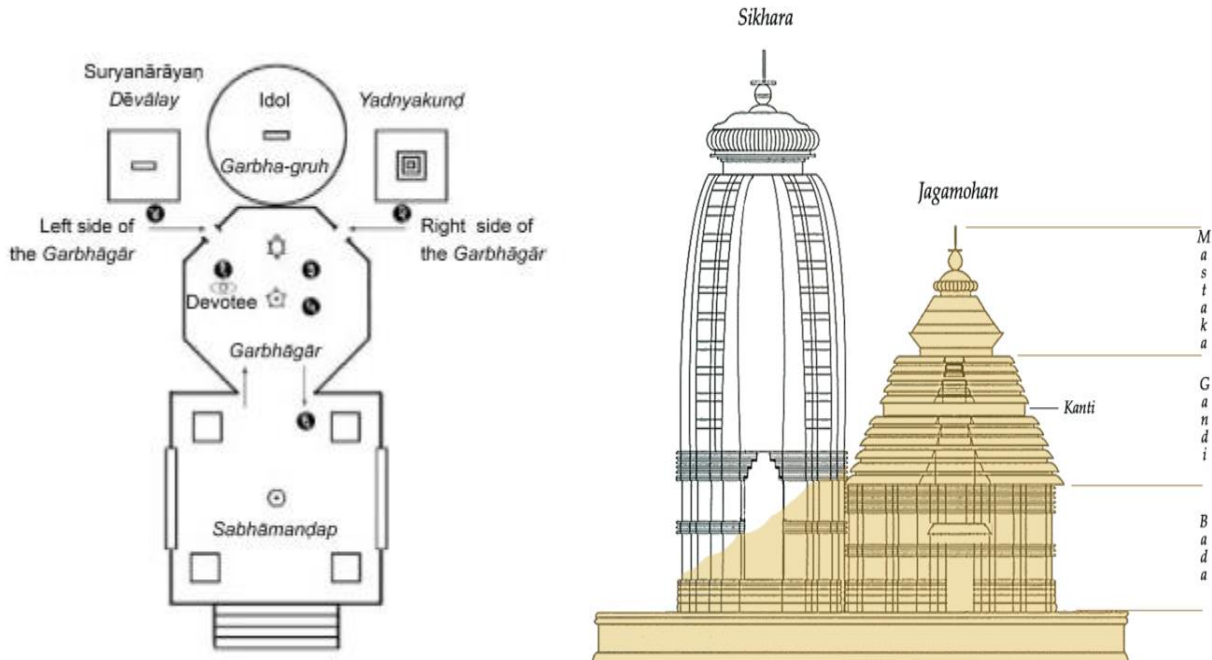
<https://www.vice.com/en/article/4xqjd/marvel-at-these-euphoric-architectural-mandalas>

CHAPTER III

ELEMENTS OF INDIAN TEMPLES

Mandala of the Hindu Temple Architecture

Dr Uday Dokras



Plan: The earliest architecture in India is that of cottage type. It is a circular, bottle or dome shaped. Mud and Bamboo sticks were used for construction. In the course of evolution number of plans were incorporated in the temple architecture, such as circular plan, square, rectangular, elliptical, upsidal, stellar, etc. A text like Manasara mentions 32 types of square plans 1 . Plan is essential for any structural temple. Plans of the temples depend upon the number of components that existed within the temple.

The simplest plan of the temple consists of a garbhagriha and sabhamandapa or porch. This simple plan does not imply that the structure belonged to the earliest period. The temples constructed in the later period also have simple plans. Construction of a temple depends upon the financial position of the builder. When an antarala is added in-between garbhagriha and mandapa, then the plan of the temple becomes little larger. When a pradakshinapatha (circumambulatory path) is added to garbhagriha and antarala, the plan of the temple becomes wider. Then it is called as Sandhara' temple. In the course of time, number of components of the, temple increased like mandapas, shrines for subsidiary deities; priikaras, etc, and the plan of the temple became large and wider.

Mandala: With the arrival of Agamas in Hindu religion, the details of architecture became more sophisticated in the temple and reflected the fundamental symbolism of Mandalas. The Yoga Tattva Upanishad speaks about the symbolism in terms of the five fundamental elements that constitute the material basis of the entire cosmos. Earth elements are represented by a 'Square', Water with a 'semicircle', fire by a 'Triangle', air by a 'six- angled figure' and ether (sky) by a circle. The point without dimension dot (bindu) is the focus of all energy . The icon in the sanctum occupies the central position and the temple represents the other necessary forms. The architectural details of a sophisticated temple reflect this fundamental symbolism. The above five forms are represented in a Mandala known as Vishva-Karma Mandala,' which is regarded as fundamental to all temple architecture 3 . The four sides of the Mandala symbolize the four main directions and the corners of the square represents four mid-directions and each of the eight quarters is presided over by a deity. The inner circle symbolizes the 'Creator' (Brahma), which is symbolic of activity, guarded by the eight directions.

The Mandala is symbolic of the entire universe. The 'allmaker' (Creator) is also the progenitor. The whole mass of scripture, consisting of manuals of architecture, sculpture and painting collectively are known as Agama. Early temples were reputed to be built by this All-maker . In early days, this vertical emphasis was laid on only one tier (prathama tala). Later, number of tiers (talas) were added to this superstructure. It was believed that the entire area, which the vimana or sikhara overlooked was rendered holy and the area covered by this sikhara, would be prosperous. Superstructures of temples of Kalinga type are simple with series of receding courses forming stepped pyramids. Another type of superstructure that is of storyed type contains several talas (storeys).)

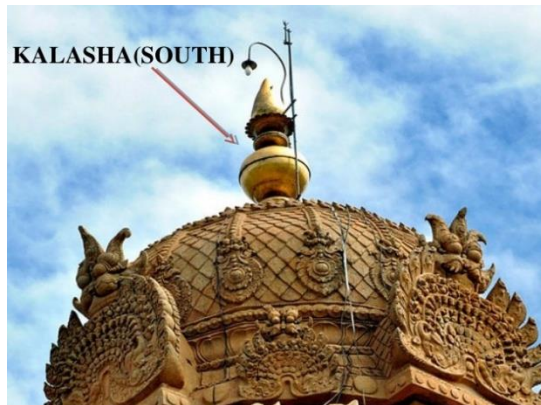
Texts like Vishnu Tilaka, Manasara, Mukutaganta, Silparatna, layamata and Isana Shivaguru Paddhati and Bhava Prakasana give broad account of sikhara features such as Nagara, Dravida and Vesara. In addition to these Nagara, Dravida and Vesara type sikharas, Vishnu Mn Ira and Markhandcya Samhita grouped the temples into nine and added six more types such as Sarvadesika, Kalinga, Varata, Mandira, Bhavana and .yoga. But Silvaprasna and liana Shivaguru Paddhati referred only three classifications, Nagar. Dravida and Vesara

Nagara: Actually means squarish, cruciform in plan and its sikhara has a vertical emphasis.

Vesara: Circularly emphasized horizontal aspect shape, like domical or octagonal or in the shape of vaulted roof. Another feature is storeyed towers and tall gopuras. It is a combination of Dravida and Nagara style of Sikhara features.

Dravida- Polygonal or octagonal (six or eight sided): It is circular in plan or apsidal. General conception is that Nagara type of temples prevails in the land between the Himalayas and Vindhya ranges. Vesara type of temples exists inbetween Vindhya ranges and Krishna river and Dravida type of temples prevails inbetween River Krishna and Kanyakumari⁷.

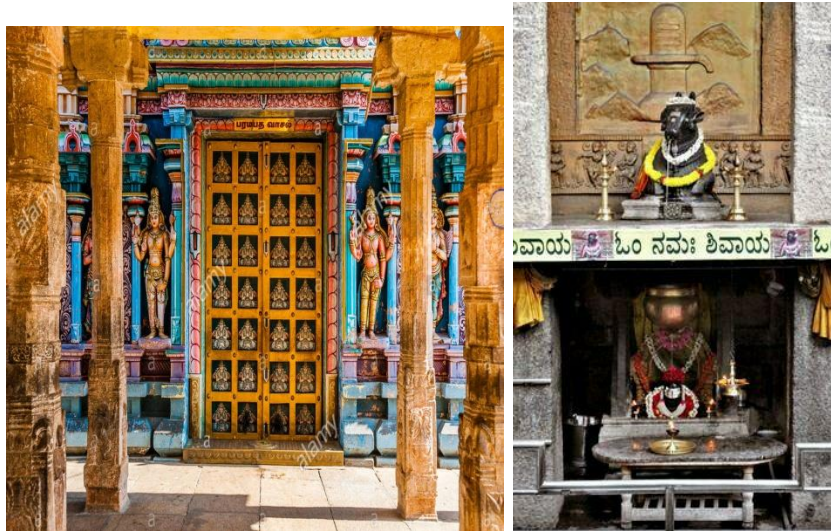
The term sikhara meaning 'Mountain peak' may indicate that it signified 'Meru' meaning mountain or Kai lasa , , so tall and sacred place of Shiva. The North Indian vimana or Sikhara is crowned by a large circular (Wheel shaped) capstone block known as 'amalaka' (ribbed disc resembling an amalaka fruit, Emblic Myrobalan), while its South Indian counterpart ends in a cupola (Srnga) or Wagon roof (khakra). The South Indian vimana is broader and shorter than the North Indian vimana. The North Indian temples rise from a pedestal (Pitha or Jagati), though the wall (tiara) and main body (gandi) to the head (mastaka), which consists of a rib, is surmounted by a 'skull' (khopuri) on which is installed the Kalasa (finial). And on top of finial will be seen the weapon (ayudha) of the deity, a trident or a discus flag e.g.



Jagati(See my paper on Jain temple Jagati elsewhere on academia.edu and researchgate.net) Temples in Orissa and Khajuraho The The Jaina temple at Cudne, Goa stands on Pitha (Jagati) like North Indian temple. Compared to the North Indian Temple Sikharas, in the Dravidian vimana, the height is less emphasized. The plan of the Virnana could be round or square. It could also be six- sided or eight- sided. It could retain one form uniformly from the base to the top or combine two or more plans at different storeys, sometimes as many as sixteen, but the prevailing style is devoid of such differentiation into storeys. It rises above the sanctum with flat roof of the sanctum (Bhumika or Kapotha) as its base (adhisthana).

Kalasa It was an old custom to install a crowing member in the form of a sacrificial 'Vase (Kalasa)' made of metal. kalasa denotes a mark of exaltation . It occupies the topmost part of the temple below the Ayuda. (Pineal). Porch The rectangular porch in front of the Sanctum sanctorium (Mukhamandapa or **Mukha —sala**) is a pillared hall, allowing the devotees to stand and watch the worship rituals as they are

conducted inside the sanctum. When the temple became popular and devotees increased, the sanctum needed additional hall and this porch became merely a vestibule (antarala) 21 . Its main function is to accommodate more devotees of the temple. The porch (vestibule) is structurally connecting the sanctum with the additional hall (assembly hall). Like the antarala in front of the sanctum, a low raised structure called 'Sukhanasi' crowned antarala. It is erected in front of the Sikhara, which stands on sanctum proper. Unlike the sanctum covered by flat roof stone slabs, antarala is also filled in the similar manner, which serves as the base (adhisthana) for the super structure.



The doors of the temple must always be two panelled and the two are described as mother and daughter ' Brihat-Samahita prescribes that the door must be located in the middle of the front wall and that it must be in the same direction as the idol. According to Agnipurana, the door must always be placed in one of the four directions and never in the corners. Suprabhediiigama recommends gateways in all the four directions on the outer wall. Texts mentioned that Devadar wood is best for temple doors.

. Texts prescribe the rules about the several aspects of door like jamb, lintel (dwara-sakha), door panels (kabata), door joints (dwara sandhi), door planks (phalaka), bolt (kila-bhajana), tower over the door way (dwara gopura) and the chamber associated with the door way (dwara-koshtha). Dwiira-Sakha (door jamb) is single panelled in early temples without much ornamentation. Ornamentation developed in the later period in the door panels, and it became familiar as Sakhas in temple architecture such as Lata Sakha, Patra Sakha, Pushpa Sakha, etc. The popular simple form of doorconsists of only three sakhas in it.

Sometimes the images of Gajalakshmi or Ganesh at the centre of lintel occasionally with Purnakumbhas on either side, Dweirapalas or Ganga, Yamuna or Purnakumbhas at the base also can be seen in the

Dwara Sakhas in the medieval period. Mahadeva temple at Curdi is the best example for tri-sakha dw&a. Tri-sakha dwara also can be seen at Saptakoteswar temple at Opa.

Pranala or water chute takes out ablution water from garbhagriha. It passes through garbhagriha wall (generally towards north) and extends to a considerable length away from wall (e.g Pranalas of Mahadev temple, Curdi and Tambdi Surla were extended up to the adhithana mouldings of the temple). Majority of the pranalas are in simple long block with a channel cut into it. Some pranalas are highly decorated and the mouths of the Icirtimukhas are crocodile or ox or makara or lion or creeper scroll etc., emerge as channel. Generally main deity used to be placed over the pranala in al- most all the temples in Goa. Some prdruilas have beautiful mouldings like as in the Adhithana of the temple, e.g., Brahma temple in Sattari Taluka.



A Chandrasilis (Moon-Stones) Chandrasila— or Moonstones were in the form of semicircular slabs on floor in front of doors forming a step in the beginning or in the main entrance (e.g, in front of the rock cut cave temples at Haravalem). The terminology itself suggests their shape i.e., semi circular 26. Their outline was carved on the floor slabs later (mainly in front of the garbhagriha door e.g. Curdi, Tambdi Surla and Opa temples. Subsequently, the semi-circle took leaf shape with a point at the centre and two scrolls on the sides. The Chandrsirds in the Mahadev temple at Curdi, Tambdi Surla and Saptakoteswar temple at Opa with a pointed tip are shown in relief on the floor slab in front of the garbhagriha doors.

Air and light entrances: chandrasiliis(Windows) or Jalavatayanas meant for allowing light and air into temples have provided artists with a space for exhibiting their skill by carving creepers, flowers, figures and several perforations. Some Jalavatayanas are decorated with creepers containing circular perforations

Torana is another interesting feature involved in stylized temples. Temples like Mahalasa, Manguesh, Naguesh, etc, have chitra toranas in the drooped wall of their Mandapa ceilings. Besides Chitra torana, the texts mention two other types of torana



Kopeswar temple. Highly ornamented chandrashila at entrance

- 1) Patra torana (fashioned like the lotus leaves) and
- 2) Makara torana (arch with makara).

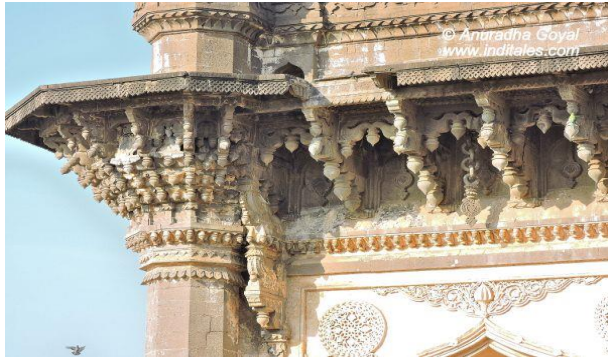
The Makara torana enshrined in the temple was suitable for the residence of Brahmins and Kshatriyas while Chitratoranas was suitable for Vaisyas and Patratorana was useful for Sudras. Sabhainandapa or



Navaranga or MaCamandapa When the temple became very popular and the participants increased in number there was a need for an additional hall of larger dimension to sanctum and antarala to accommodate large assemblies. (e .g. Navaranga).

This sabhamandapa used to be pillared hall with or without kakshasana. These type of larger halls were found more in some places according to the requirements of the temple such as Natya mandapa, Bhoga mandapa, Kalyana mandapa etc., and they can be seen mainly in Orissan temple architecture. Mahadeva temple at Tambdi Surla is the best example for its sabhamandapa with kakshasana. Modern temples like Malialsa, Ramn-ath etc., have kakshasanas within the large 96 97 halls (Mandapas) but those are not aesthetic enough like that of Tambdi Surla temple. The area of the temple comprising of the sanctum and the halls as well as the tanks and gardens came to be enclosed by a wall (prakara). But this was a later innovation and can be seen in many of the South Indian temples. Walls The treatment of walls also depicts a wide range from simple plain to decorated with pilasters, turrets and figures. Some of the mukhamandapas and Sabhamandapas are open and some are covered with jalavatayanas (perforated door screens) niches and figures. Mahadev Temple at Tambdi Surla and temple fragments of Saptakoteswar temple near St Cajetan Church, Old Goa are the best examples.

Chajjas: A projected horizontal band called bandana runs in the middle of the wall of sanctum and antarala of Tambdi Surla temple with Kudya stambhas with regular intervals resembling the features of later Chalukyan period. Eaves The main function of eave or chajja is to protect wall from rainwater. It projects forward from the ceiling level, so that water is thrown away from wall surface. The slightly projecting eaves with curved upper surface to facilitate the flow of water are found in several temples. Especially in Goa, the rainfall is more and it continues for a long period. Hence almost all the structures in Goa require slanty roofs and eaves for easy disposal of rainwater. Ceilings Ceilings are different types. 1) Domical ceiling 2) Flat ceiling 3) Rectangular ceiling 4) Square ceiling 5) Circular ceiling 6) Rotated squares ceiling 7) Octagonal ceiling, etc.,



Placing smaller triangular slabs over the corners of the lower square forms the upper square. A flat slab is placed at the top for covering the central gap. The space of the ceiling is reduced at the top by creating these squares. The lower square is exactly half of the ankara and the upper square is half of that of the lower. A flat slab one-fourth of the size of the ankara is used at the top. The squares not only reduce the areas but also break the monotony of the comparatively plain interior 29. This type of ceiling 98 99 appeared in the rock cut cave at Khandepar for the first time in Goa where the ceilings of the monolithic rock are cut in the shape of trabeat (lantina type). This system became more sophisticated in the structural temples such as Mahadev temple at Curdi and Tambdi Surla in the later period.

The central bays in the Nandimandapa ceiling is decorated with a variety of circular inverted lotus in the same temple. Here lotus petals were more projected and a lotus bud was shown very prominently in the centre and the star shaped central lotus is encircled with similar type of lotuses. The ceiling slabs of eastern side bay of mandapa are also adorned with the star shaped circular lotuses in it. Similarly, in the later temples like Mahalasa, Manguesh, Nciguesh, Shantadurga, have lotus decoration in ,mkjnbvcyghthe wooden ceilings in the mandapas. These temples generally have domical shape ceilings on the octagonal base for sanctum. The domical ceilings are almost plain and no decorations are found in them.

100 Pillars Pillars supporting the corners of garbhagriha and antarala are known as canton pillars.

The canton pillars are prominently shown in the rock-cut cave architecture. Rock cut caves at Khandepar is the best example for this feature. Here the canton pillars are chiselled in the monolithic rock in the corners of garbhagriha and antarala, canton pillars can be made out of basalt (volcanic rock). Pillars supporting various mandapas of temples are found in various shapes, such as square pillars, round pillars, projected square pillars, octagonal pillars, sixteen sided pillars, star shaped pillars etc. These pillars consist of a pedestal, shaft, capital, abacus and corbels. Square Pillars: Square pillars first appeared in the rock cut cave temples. These pillars are simple massive and plain, and can be seen in the rock cut cave temples at Harvalem, Limgaon, Veliguem Surla, Narve, Kussyacherann in Goa. 101 Round Pillars: Simple

round pillars consist of a lower square block and the remaining circular portion with pot at the top. This type of pillars can be seen in the Nandimandapa of Mahadev temple at Curdi. These pillars have a square base, a rectangular malasthana, an octagonal and a circular shaft with a top pot and a square capital with pothikas on its top.



Accessory structures Very few temples contain accessory structures like Nandi shrine or Nandi mandapa separately in front of the temple or otherwise these are attached to the main temple. Some temples have separate shrines for subsidiary deities, (Parivara- devta or Gramdevta) on either side of the main temple or backside or in the front of the main temple. Maximum number of accessory structures in Goa belongs to Ravalnath, Sateri, Ganesh and Durga.

Tulasi Tulasi is the most important plant for Hindus. because Lakshmi's presence is recognized in the Tulasi plant. Every year on the twelfth day of the bright half of Kartik, Tulasi Vivah (marriage) is celebrated. Tulasi or holy basil is worshipped with profound respect everywhere. People keep a Tulasi plant in front of their house on a specially made stand called Tulasi Vrindavan and worship with great veneration to keep the environment free from bacterious and unwanted prying eyes (burl nazar) into their

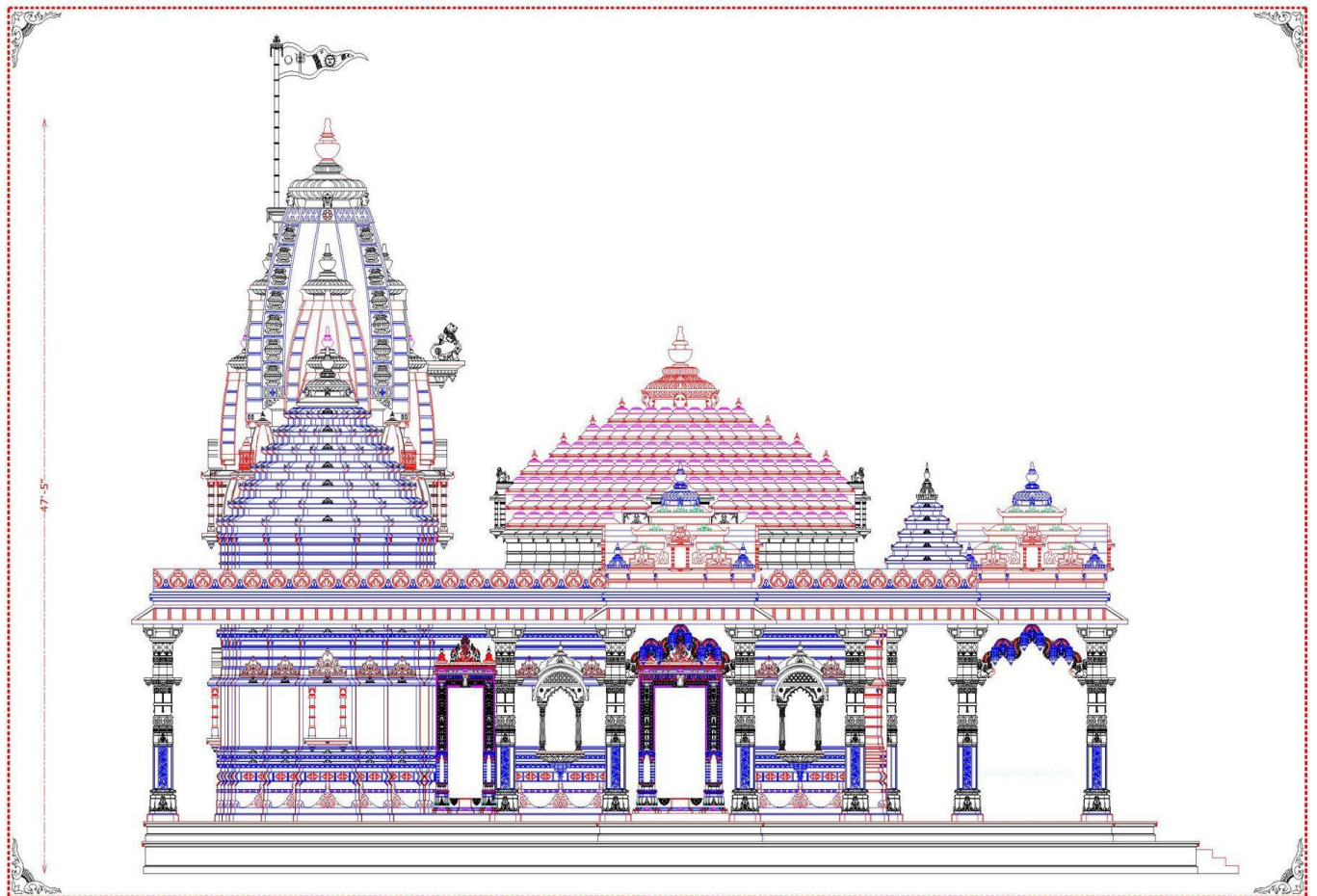
houses.



Dhvaja-Stambha (FLAG-STAFF): Hayasirsha — samhita, a Pancharatra text reveals that a building (prasada) without a flag would be in vain. 'Shiva-sarvasva' describes the purpose of the flag as indication of the insignia of the deity or of the characteristic vehicle of the icon that is within the sanctum. Ancient texts mentioned that where the flag was hoisted in front of the temple; Gods as well as manes used to be delighted. The text also assigns Vishnu (protector) to the top, Brahma (creator) to the middle and Shiva (destroyer) to the bottom of the 107 flag-staff. 36 . Hosting the flag suggests setting out to conquer. The devotee coming into the temple would have firm resolve to conquer his own baser nature. To look at the flag would be a reminder for him in this regard. The Sanskrit word for the flag or banner dhvaja strictly means whatever that is raised. Whatever raises man to a higher level of understanding and activities is a dhvaja. It is a call that God is high and above. The characteristic animal and the insignia of the icon on the banner gives a direction to the devotee's desire and will. When the devotee sees the banner and bows before it, he resolves to rise higher. The benefit of the flag-mast is here said to be "obtainment of all that is desired". The canonical texts favour wooden or bamboo poles. In course of time, the wooden pole was covered with copper, brass or even with silver.

Bali-Pitha (The Dispensing Seat): The sanctum, adytum garbhagriha, which is the most important structural detail, is closely associated with the Bali-Pitha that is installed in front of the sanctum directly facing the icon. Actually there will be several 'seats' of this nature, installed in various ritualistically determined positions inside the enclosure and outside the sanctum. However, the one in front of the sanctum is the 'Chief seat'. (Pradhana-pitha). It is a low stone altar, frequently planned in the form of a flat, relatively elaborate form with a base, cornices, wall surface and the top lotus. The canons specify that the real temple should comprise of the sanctum, the tower on top of it, the icon inside it and the

dispensing seat in front of it 3:9. 110 Water Tank: Water tank or snanaghat is essential for Hindu temple. Before entering into the temple, the devotee must purify (parishuddh) with taking bath or clean and wash hands and legs and head. Water tank is also necessary for daily requirement of water for deities and cleaning of temple. Providing Snanaghat (bathing ghat or pushkar) on the banks of major rivers near the temple is ancient practice jri India. All the 12 major rivers in India have bathing ghats to celebrate 'Pushkar'. The Pushkar celebrations come once in twelve years after rotation at all the major rivers from North to South (e.g., Ganga nadi pushkar. Yamuna nadi pushkar, Godavari nadi pushkar and Krishna nadi Pushkar.

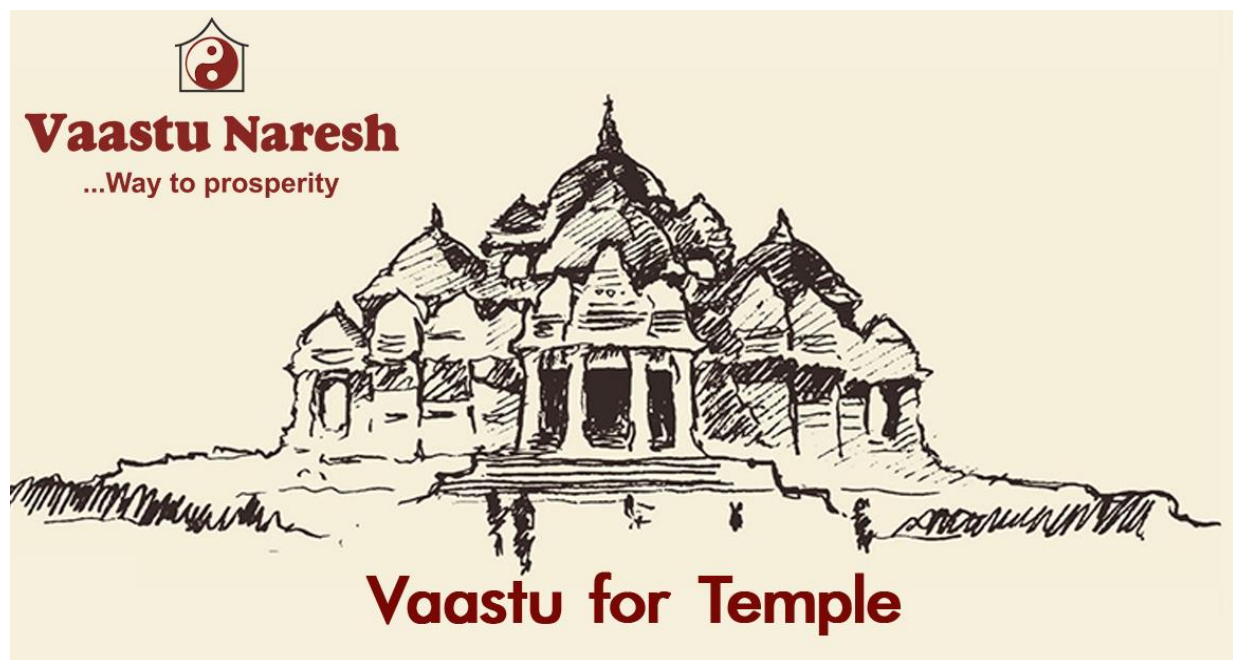


CHAPTER IV



Origin of Vastu Shastra

The origin of vaastushastra may have taken place well over thousands of years ago. The learned men of those days may not have lived in houses themselves but they most definitely dedicated their lives to the development of the science "vaastushastra" or "vaastu", as it is popularly known today.



The principles of the science laid down during those days were based purely on the effect of sunrays during different times of the day. The observations and corrections made were noted and concluded only after indepth screening of the situation.

Vastu is a part of Vedas, which are believed to be four to five thousand years old. Through penance and meditation yogis of that period acquired answers believed to have come from the cosmic mind itself to their questions. Hence Vedas are heeded with divine knowledge. The art of Vastu originates in the Stapatya Veda, a part of the Atharva Veda.

It used to be a purely technical subject and it was only confined to architects (Sthapatis) and handed over to their heirs. The principles of construction, architecture, sculpture etc., as enunciated in the epics and treatise on temple architecture, have been incorporated in the science of vastu. Its description is there in epics like Matsya Purana, Skanda Purana, Agni Purana, Garuda Purana, and Vishnu Purana. There are some other ancient shastras that pass over the knowledge of vastu shastra to next generation, like Vishvakarma Prakash, Samraangan Sutradhar, Kashyap Shilpshastra, Vrihad Sanhita, and Praman Manjaree.

Proofs of vaastushastra can be found during the time of Ramayan and Mahabharat. Even in the cities of Mohanjodaro and Harappa the application of vaastushastra can be seen.

Since the science goes far back to the times of Lord Rama and Lord Krishna there are many interesting mythological stories concerning the origin of Vaastupurush (the deity).

In the Mahabharata it is said a number of houses were built for the kings who were invited to the city Indraprastha for the Rajasuya Yagna of King Yudhistira. Sage Vyasa says that these houses were as high as the peaks of Kailasa mountains, perhaps meaning that they stood tall and majestic. The houses were free from obstructions, had compounds with high walls and their doors were of uniform height and inlaid with numerous metal ornaments. It is said that the site plan of Ayodhya, the city of Lord Rama was similar to the plan found in the great architectural text Manasara. References are also to be found in Buddhist literature, of buildings constructed on the basis of Vastu. They contain references to individual buildings. Lord Buddha is said to have delivered discourses on architecture and even told his disciples that supervising the construction of a building was one of the duties of the order. Mention is made of monasteries (Viharas) or temples, buildings which are partly residential and partly religious (Ardhayogas), residential

storeyed buildings (Prasadas), multi-storeyed buildings (harmyas) and Guhas or residential buildings for middle class people.

The Vastu, with word meaning 'dwelling', is believed to be the residing places of god and man. According to its modern meaning it covers all buildings irrespective of their use like residences, industries, business establishments, lodges, hotels etc. It is based on the five basic and essential elements, such as Vayu (air), Agni (fire), Jal (water), Bhumi (earth) and Aakasha (space), which are known as Panchabhutas. Everything on earth is built from these elements.

One such story :

Lord Shiva had killed a devil named Andhak after a long war which had continued for years. A spirit originated out of the perspiration of Lord Shiva and consumed all the blood from the body of the devil. His hunger was still not satisfied. He then undertook penance. Lord Shiva was impressed and highly satisfied by his penance and offered him a boon. The spirit then went wild and started eating men and animals. This terrified even the Gods in heaven. 81 Gods including Lord Bramha laid the spirit face down and they then sat on different parts of its body. When the spirit asked for forgiveness Lord Brahma offered him a boon: "After building any structure, the people who offer you prayers and worship you as vaastudevta will be blessed with pleasures and prosperity. However only those people, who do not offer you prayers shall be at your mercy and you may trouble them in any way".

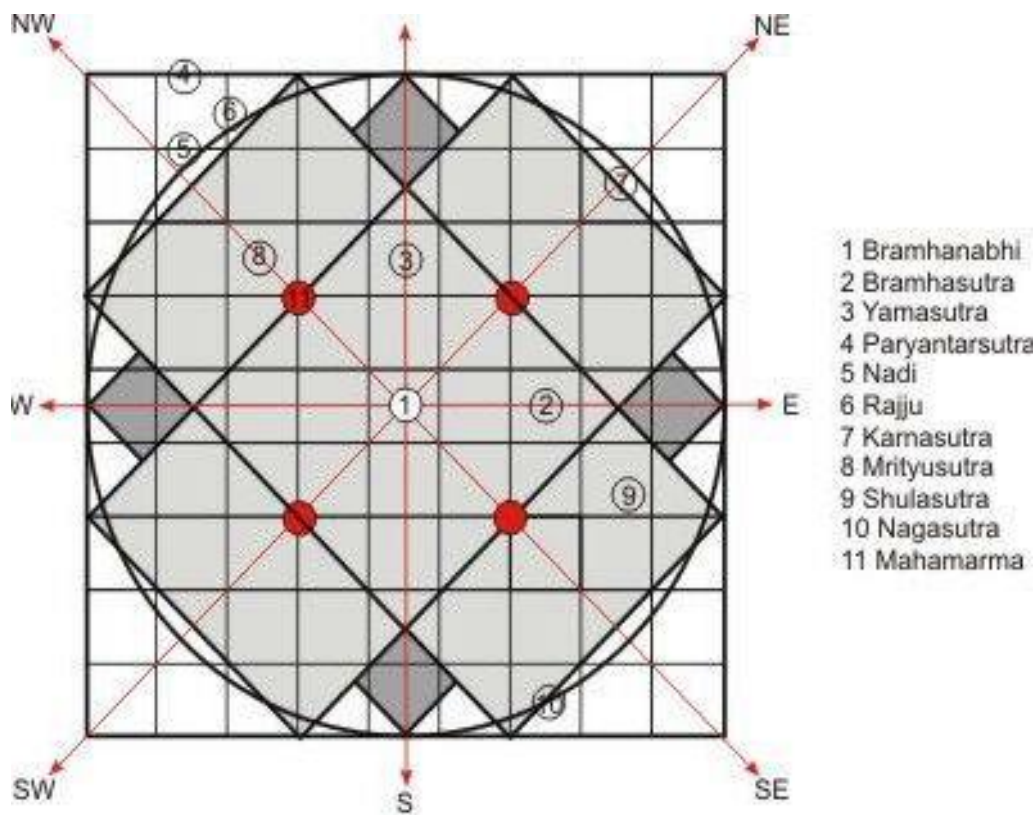
There is a possibility that these stories were added in the olden scripts only to scare people and make them conscious about the subject.

The science of vaastushastra is however no mythological story and has stood the test of time for thousands of years.

History of Vaastu

The science of Vastu is considered an integral part of the Indian architecture. According to modern historians Ferguson, Havell and Cunningham, this science developed during the period of 6000 BC and 3000 BC. Being a technical subject, it was confined only to the architects (Sthapathis) and handed over verbally or in the form of hand-written monographs. The principles of construction, architecture and sculpture, as enunciated in the treatises on temple architecture, have been incorporated in the science of Vaastu.

From ancient literature, we gather that Vaastu was treated as the science of construction of temples and royal palaces. Theories tracing links of the principles of composition in *Vastu Shastra* and the Indus Valley Civilization have been made, but scholar Kapila Vatsyayan is reluctant to speculate on such links given the Indus Valley script remains undeciphered. According to Chakrabarti, Vastu Vidya is as old the Vedic period and linked to the ritual architecture. According to Michael W. Meister, the *Atharvaveda* contains verses with mystic cosmogony which provide a paradigm for cosmic planning, but they did not represent architecture nor a developed practice. Varahamihira's *Brihat Samhita* dated to the sixth century CE, states Meister, is the first known Indian text that describes "something like a *vastupurusamandala* to plan cities and buildings". The emergence of Vastu vidya as a specialised field of science is speculated to have occurred significantly before the 1st-century CE.



In the Matsya Purana, seventeen preceptors of Vaastu have been mentioned. They are Bhrugu, Atri, Vasista, Viswakarma, Maya, Narada, Nagnajit, Visalaksha, Purandara, Brahma, Kumaraswamy, Nandisa, Sounaka, Bhargava, Vasudeva, Anirudha, Sukra and Bruhaspathi. The first official treatise on Vaastu, the Kasyapa Silpa, has been attributed to Sage Kasyapa.

In the treatise Agama Shastra, which explains the science of temples, Vaastu is considered as the basis for any type of construction. Excavations at Harappa and Mohenjodaro also indicate the influence of Vaastu on the Indus Valley Civilization.

Role of India

India is the mother of vastu as our saints formulate principles of vastu here. Vastu was written down thousands of years ago where our sages kept in mind the effect of energies and sunlight and balance all the five elements in a manner to have the maximum benefit out of it.

Vastu Shilpa Shastra, the ancient mystic science and the art of designing and constructing buildings finds its origin in Stapatya Veda, which in turns is a part of Atharvana Veda, one of the four Vedas. According to modern historians Ferguson, Havell and Cunningham, this science developed during the period of 6000 BC and 3000 BC.

Proofs of vaastu shastra can be found during the time of Ramayan and Mahabharat. In the cities of Mohanjodaro and Harappa the application of vaastu shastra can be seen. In the Matsya Purana, seventeen preceptors of Vaastu have been mentioned.

These principles, called Vastu Shastra, were evolved over thousands of years out of experience and foresight of ancient Sages of India and are very valuable for the well being of mankind. According to Shastras, if we worship, revere and respect the lords of these eight directions, they will shower on us their blessings and benefits. Our saints have searched vastu shastra; we are only Researching it.

Ayadi Calculations :

Ayadi calculation is one of the most important part in Sthapatya Veda, Ayadi Calculation is also called as Ayadi Shadvarga or the Building formulae. The Scriptures as well as the ancient architects (Sthapatis) considered the dwellings as a living organism, irrespective of temple, residential homes, palaces etc.

The knowledge of Ayadi is used by the designer to determine the effects of the physical structure on the individual. The homeowner is born under the influence of a particular birth star. The building is considered to be a living being and also has a birth star. Ayadi calculations attempt to harmonize the energies created by the influence of the birth star of the person and that of the

building. When these energies are harmonized the dweller experiences material prosperity and spiritual well being. Ayadi is also said to be able to affect the fate of the individual.

Like human beings, Vastu also has a horoscope. The Ayadi Shadvargas denote the horoscope of a Vaastu. It is the guiding formulae for the prosperity and well being of the inhabitants of the house. Here a master designer can change the horoscope of the artifact he designs, by giving due attention to the Ayadi Shadvarga formulae.

Vastu Shastra is the traditional way of enhancing your luck by integrating architecture with Nature. Vastu is an important part as it attracts and allows positive energy to freely flow through the place. Aaya Prakaran is one of the most important parts of Vastu Shastra. The word Aaya means income. When you take up any land for construction “Aaya Prakaran” must be followed to get benefits and to achieve good results.

Vastu shastra (*vāstu śāstra* - literally "science of architecture" is a traditional Indian system of architecture originating in India. Texts from the Indian subcontinent describe principles of design, layout, measurements, ground preparation, space arrangement, and spatial geometry Vastu Shastras incorporate traditional Hindu and (in some cases) Buddhist beliefs. The designs aim to integrate architecture with nature, the relative functions of various parts of the structure, and ancient beliefs utilising geometric patterns (yantra), symmetry, and directional alignments.

Vastu Shastra are the textual part of *Vastu Vidya* - the broader knowledge about architecture and design theories from ancient India. Vastu Vidya knowledge is a collection of ideas and concepts, with or without the support of layout diagrams, that are not rigid. Rather, these ideas and concepts are models for the organisation of space and form within a building or collection of buildings, based on their functions in relation to each other, their usage and the overall fabric of the Vastu. Ancient Vastu Shastra principles include those for the design of *Mandir* (Hindu temples), and the principles for the design and layout of houses, towns, cities, gardens, roads, water works, shops and other public areas.

vāstu, takes the meaning of "the site or foundation of a house, site, ground, building or dwelling-place, habitation, homestead, house". The underlying root is *vas* "to dwell, live, stay, reside". The term shastra may loosely be translated as "doctrine, teaching".

Vāstu-Śāstras (literally, science of dwelling) are ancient Sanskrit manuals of architecture. These contain Vastu-Vidya (literally, knowledge of dwelling).

Ancient India produced many Sanskrit manuals of architecture, called Vastu Sastra. Many of these are about Hindu temple layout (above), design and construction, along with chapters on design principles for houses, villages, towns. The architect and artists (Silpins) were given wide latitude to experiment and express their creativity.^[19]

There exist many Vāstu-Śāstras on the art of building houses, temples, towns and cities. One such Vāstu Śāstra is by Thakkura Pheru, describing where and how temples should be built. By 6th century AD, Sanskrit manuals for constructing palatial temples were in circulation in India. Vāstu-Śāstra manuals included chapters on home construction, town planning,^l and how efficient villages, towns and kingdoms integrated temples, water bodies and gardens within them to achieve harmony with nature. While it is unclear, states Barnett, as to whether these temple and town planning texts were theoretical studies and if or when they were properly implemented in practice, the manuals suggest that town planning and Hindu temples were conceived as ideals of art and integral part of Hindu social and spiritual life.^l

The *Silpa Prakasa* of Odisha, authored by Ramachandra Bhattaraka Kaulachara sometime in ninth or tenth century CE, is another Vāstu Śāstra.^[23] *Silpa Prakasa* describes the geometric principles in every aspect of the temple and symbolism such as 16 emotions of human beings carved as 16 types of female figures. These styles were perfected in Hindu temples prevalent in eastern states of India. Other ancient texts found expand these architectural principles, suggesting that different parts of India developed, invented and added their own interpretations. For example, in *Saurastra* tradition of temple building found in western states of India, the feminine form, expressions and emotions are depicted in 32 types of *Nataka-stri* compared to 16 types described in *Silpa Prakasa*. *Silpa Prakasa* provides brief introduction to 12 types of Hindu temples. Other texts, such as *Pancaratra Prasada Prasadhana* compiled by Daniel Smith^[24] and *Silpa Ratnakara* compiled by Narmada Sankara provide a more extensive list of Hindu temple types.

Ancient Sanskrit manuals for temple construction discovered in Rajasthan, in northwestern region of India, include Sutradhara Mandana's *Prasadamandana* (literally, manual for planning and building a temple) with chapters on town building. *Manasara shilpa* and *Mayamata*, texts of

South Indian origin, estimated to be in circulation by 5th to 7th century AD, is a guidebook on South Indian Vastu design and construction. *Isanasivagurudeva paddhati* is another Sanskrit text from the 9th century describing the art of building in India in south and central India. In north India, *Brihat-samhita* by Varāhamihira is the widely cited ancient Sanskrit manual from 6th century describing the design and construction of *Nagara* style of Hindu temples. These ancient *Vāstu Śāstras*, often discuss and describe the principles of Hindu temple design, but do not limit themselves to the design of a Hindu temple. They describe the temple as a holistic part of its community, and lay out various principles and a diversity of alternate designs for home, village and city layout along with the temple, gardens, water bodies and nature.



The 8x8 (64) grid Manduka Vastu Purusha Mandala layout for Hindu Temples. It is one of 32 Vastu Purusha Mandala grid patterns described in Vastu sastras. In this grid structure of symmetry, each concentric layer has significance.

The central area in all mandala is the *Brahmasthan*. Mandala "circle-circumference" or "completion", is a concentric diagram having spiritual and ritual significance in both Hinduism and Buddhism. The space occupied by it varies in different mandala – in *Pitha* (9) and *Upapitha* (25) it occupies one square module, in *Mahaapitha* (16), *Ugrapitha* (36) and *Manduka* (64), four square modules and in *Sthandila* (49) and *Paramasaayika* (81), nine square modules. The Pitha is an amplified Prithvimandala in which, according to some texts, the central space is occupied by earth. The Sthandila mandala is used in a concentric manner.

The most important mandala is the Manduka/Chandita Mandala of 64 squares and the Paramasaayika Mandala of 81 squares. The normal position of the Vastu Purusha (head in the

northeast, legs in the southwest) is as depicted in the Paramasaayika Mandala. However, in the Manduka Mandala the Vastu Purusha is depicted with the head facing east and the feet facing



west.

vastu directional chakara

It is believed that every piece of a land or a building has a soul of its own and that soul is known as Vastu Purusha.

A site of any shape can be divided using the Pada Vinyasa. Sites are known by the number of squares. They range from 1x1 to 32x32 (1024) square sites. Examples of mandalas with the corresponding names of sites include:

- *Sakala* (1 square) corresponds to *Eka-pada* (single divided site)
- *Pechaka* (4 squares) corresponds to *Dwi-pada* (two divided site)
- *Pitha* (9 squares) corresponds to *Tri-pada* (three divided site)
- *Mahaapitha* (16 squares) corresponds to *Chatush-pada* (four divided site)
- *Upapitha* (25 squares) corresponds to *Pancha-pada* (five divided site)
- *Ugrapitha* (36 squares) corresponds to *Shashtha-pada* (six divided site)
- *Sthandila* (49 squares) corresponds to *Sapta-pada* (seven divided site)
- *Manduka/ Chandita* (64 square) corresponds to *Ashta-pada* (eight divided site)
- *Paramasaayika* (81 squares) corresponds to *Nava-pada* (nine divided site)
- *Aasana* (100 squares) corresponds to *Dasa-pada* (ten divided site)
- *Bhadrmahasan* (196 squares) corresponds to *Chodah-pada* (14 divided sites)

Vāstu Śāstra represents a body of ancient concepts and knowledge to many modern architects, a guideline but not a rigid code. The square-grid mandala is viewed as a model of organisation, not as a ground plan. The ancient Vāstu Śāstra texts describe functional relations and adaptable alternate layouts for various rooms or buildings and utilities, but do not mandate a set compulsory architecture. Sachdev and Tillotson state that the mandala is a guideline, and employing the mandala concept of Vāstu Śāstra does not mean every room or building has to be square. The basic theme is around core elements of central space, peripheral zones, direction with respect to sunlight, and relative functions of the spaces.

The pink city Jaipur in Rajasthan was master planned by Rajput king Jai Singh and built by 1727 CE, in part around Vastu Shilpa Sastra principles. Similarly, modern era projects such as the architect Charles Correa's designed Gandhi Smarak Sangrahalaya in Ahmedabad, Vidhan Bhavan in Bhopal and Jawahar Kala Kendra in Jaipur, adapt and apply concepts from the Vastu Shastra Vidya. In the design of Chandigarh city, Le Corbusier incorporated modern architecture theories with those of Vastu Shastra.

During the colonial rule period of India, town planning officials of the British Raj did not consider Vastu Vidya, but largely grafted Islamic Mughal era motifs and designs such as domes and arches onto Victorian-era style buildings without overall relationship layout. This movement, known as Indo-Saracenic architecture, is found in chaotically laid out, but externally grand structures in the form of currently used major railway stations, harbours, tax collection buildings, and other colonial offices in South Asia.

Vāstu Śāstra Vidya was ignored, during colonial era construction, for several reasons. These texts were viewed by 19th and early 20th century architects as archaic, the literature was inaccessible being in an ancient language not spoken or read by the architects, and the ancient texts assumed space to be readily available. In contrast, public projects in the colonial era were forced into crowded spaces and local layout constraints, and the ancient Vastu sastra were viewed with prejudice as superstitious and rigid about a square grid or traditional materials of construction. Sachdev and Tillotson state that these prejudices were flawed, as a scholarly and complete reading of the Vāstu Śāstra literature amply suggests the architect is free to adapt the ideas to new materials of construction, local layout constraints and into a non-square space. The design and completion of a new city of Jaipur in early 1700s based on Vāstu Śāstra texts, well

before any colonial era public projects, was one of many proofs. Other examples include modern public projects designed by Charles Correa such as Jawahar Kala Kendra in Jaipur, and Gandhi Ashram in Ahmedabad. Vastu Shastra remedies have also been applied by Khushdeep Bansal in 1997 to the Parliament complex of India, when he contented that the library being built next to the building is responsible for political instability in the country.

German architect Klaus-Peter Gast states that the principles of Vāstu Śāstras is witnessing a major revival and wide usage in the planning and design of individual homes, residential complexes, commercial and industrial campuses, and major public projects in India, along with the use of ancient iconography and mythological art work incorporated into the Vastu vidya architectures.

Vastu and superstition

The use of *Vastu shastra* and *Vastu consultants* in modern home and public projects is controversial. Some architects, particularly during India's colonial era, considered it arcane and superstitious. Other architects state that critics have not read the texts and that most of the text is about flexible design guidelines for space, sunlight, flow and function.

Vastu Shastra is considered as pseudoscience by rationalists like Narendra Nayak of Federation of Indian Rationalist Associations. Scientist and astronomer Jayant Narlikar considers Vastu Shastra as pseudoscience and writes that Vastu does not have any "logical connection" to the environment.^[2] One of the examples cited by Narlikar arguing the absence of logical connection is the Vastu rule, "sites shaped like a triangle ... will lead to government harassment, ... parallelogram can lead to quarrels in the family." Narlikar notes that sometimes the building plans are changed and what has already been built is demolished to accommodate for Vastu rules.^[2] Regarding superstitious beliefs in Vastu, Science writer Meera Nanda cites the case of N. T. Rama Rao, the ex-chief minister of Andhra Pradesh, who sought the help of Vastu consultants for his political problems. Rama Rao was advised that his problems would be solved if he entered his office from an east facing gate. Accordingly, a slum on the east facing side of his office was ordered to be demolished, to make way for his car's entrance. The knowledge of Vastu consultants is questioned by Pramod Kumar (citation required), "Ask the Vaastu folks if they know civil engineering or architecture or the local government rules on construction or minimum standards of construction to advise people on buildings. They will get into a barrage of "ancient"

texts and "science" that smack of the pseudo-science of astrology. Ask them where they were before the construction boom and if they will go to slum tenements to advise people or advise on low-cost community-housing—you draw a blank."

Architectural Treatises: Of the numerous Sanskrit treatises mentioned in ancient Indian literature, some have been translated in English. Many Agamas, Puranas and Hindu scriptures include chapters on architecture of temples, homes, villages, towns, fortifications, streets, shop layout, public wells, public bathing, public halls, gardens, river fronts among other things.^[5] In some cases, the manuscripts are partially lost, some are available only in Tibetan, Nepalese or South Indian languages, while in others original Sanskrit manuscripts are available in different parts of India. Some treatises, or books with chapters on Vaastu Shastra include:

- Manasara
- Brhat samhita
- Mayamata
- Anka sastra
- Aparajita Vāstu Śastra
- Maha-agamas (28 books, each with 12 to 75 chapters)
- Ayadi Lakshana
- Aramadi Pratishtha Paddhati (includes garden design)
- Kasyapiya
- Kupadi Jala Sthana Lakshana
- Kshetra Nirmana Vidhi (preparation of land and foundation of buildings including temples)
- Gargya samhita (pillars, doors, windows, wall design and architecture)
- Griha Pithika (types of houses and their construction)
- Ghattotsarga Suchanika (riverfront and steps architecture)
- Chakra sastra
- Jnana ratna kosha
- Vastu sarani (measurement, ratio and design layouts of objects, particularly buildings)
- Devalaya Lakshana (treatise on construction of temples)

- Dhruvadi shodasa gehani (guidelines for arrangement of buildings with respect to each other for harmony)
- Nava sastra (36 books, most lost)
- Agni Purana (Chapters 42 through 55, and 106 - Nagaradi Vastu)
- Matsya Purana (Chapters 252 through 270)
- Maya samgraha
- Prasada kirtana
- Prasada Lakshana
- Tachchu sastra (primarily home design for families)
- Manushyalaya Lakshana (primarily human dwellings)
- Manushyalaya Chandrika
- Mantra dipika
- Mana kathana (measurement principles)
- Manava vastu lakshana
- Manasollasa (chapters on house layout, mostly ancient cooking recipes)
- Raja griha nirmana (architecture and construction principles for royal palaces)
- Rupa mandana
- Vastu chakra
- Vastu tattva
- Vastu nirnaya
- Vastu purusha lakshana
- Vastu prakasa
- Vastu pradipa
- Vastu manjari
- Vastu mandana
- Vastu lakshana
- Vastu vichara
- Vastu Vidya
- Vastu vidhi
- Vastu samgraha

- Vastu sarvasva
- Vimana lakshana (tower design)
- Visvakarma prakasa (home, roads, water tanks and public works architecture)
- Vaikhanasa
- Sastra jaladhi ratna
- Silpa prakasa
- Silpakala Dipika
- Silpartha Śastra
- Sanatkumara Vāstu Śastra
- Samarangana Sutrad

In Vastu Shastra, the formula of Aaya and Vargas need to be followed for scientific and accurate construction. There are Nine Vargas also known as Navavargas and the importance of each Varga is stated in the classical references such as Samarangana, Suthradhara, Mayamata, Aparajita Prucha, Kalarnrutha, Viswakarma Prakasika, Vasthusara, etc.

The Vishwakarma Prakasika elaborates the Nine Vargas in detail. The name of Nine Vargas being Ayam, Varam, Amsa, Dhana, Runa, Nakshatra, Tidhi, Yuti, Ayuvu.

There are also a variety of opinions and thus some classical texts state only about 6 Vargas being Aaya, Dhana, Vyaya, Tidhi, Vara, Nakshatra.

There are eight types of Aaya's representing each direction, namely:

- **Dhwaja** - East
- **Dhumra** - South East
- **Simha** - South
- **Svana** - South West
- **Gaja** - North
- **Kaka** - North East
- **Vrusha** - West
- **Khara** - North West

The Aayas are best suited for the position or direction of which they are native off. The Aaya which is opposite to the native direction is always of the enemy character for the Native. The

construction of the house/office/temple can be done in any of the four directions i.e. North, East, South, West but not in any corner.

Effects of Aayas

There are different effects of Aayas on different areas of life. Some of these effects are:

- **Dhwaja Aaya** : Benefits related to money
- **Dhumra Aaya** : Sorrows
- **Simha Aaya** : Luxuries
- **Svana Aaya** : Great Sins
- **Vrushbha Aaya** : Increase and accumulation of Wealth and gains
- **Gaja Aaya** : Success in career prospects
- **Kaka Aaya** : Death

The main doors should be made facing the native side of the Aaya for the best and favourable results. For example, to attain favorable results from the Dhwaja Aaya the doors should not be constructed in the Western sides as the Native side of Dhwaja Aaya is east and thus it will be facing east.

The Aayas have their own Swarups and lordships cast too. Simha Aaya is of the lion, Vrushabha Aaya is of bull, Gaja Aaya is of an elephant, Dhumra Aaya is a cat, Svana Aaya is a dog, Khara Aaya is of a donkey and whereas the kaka is of crow.

Most of these Aayas have Masculine features, Bullock like features, elevated neck, hands which match human hands, features like bird feet and lion neck are also present, which are favourably considered.

The Fifth Varga of the Native Varga should be avoided as it is considered as of enmity nature and does no good to Native Varga. The best Varga is always the Swa Varga (which means the Varga of its own) as it is favourable and always preferred.

The effects of different Vargas from the Native Vargas are:

- **Swavarga** : Dhana Labha, Monetary benefits.
- **Second Varga** : Fewer Profits
- **Third Varga** : Auspicious
- **Fourth Varga** : Diseases
- **Fifth Varga** : Enemical

- **Sixth Varga** : Quarrelsome
- **Seventh Varga** : All kinds of benefits
- **Eighth Varga** : Death

Amsa

There are only three “Amsas” in the Aaya Prakarana:

- **Indramsa** - It will present the status and happiness of a person.
- **Yamamsa** - It will lead to death, sorrow and many diseases.
- **Rajasamsa** - It will improve wealth and gains.

The Mars and Sun of a house will result in threat from fire and the other houses will be favourable.

Tithis : Among the Tithis, Rikta Tithi will cause poverty and Amavasya tithi will cause diseases of worms.

Yogas : The bad Yogas of the 27 Yogas present will affect the owner with loss of wealth and gains.

Ayuvu (Life Span) : When the lifespan of the house is based on arithemathical calculations and the result is more than 60, then it is considered to be lucky and auspicious and if the result is less than 60, then it is considered to be inauspicious.

Dikpati (Lord of Directions) :

The remainder gives the following results as per the calculations :

- **Indra** - Good for women
- **Agni** - Threat from fire
- **Yama** - Inauspicious
- **Nirti** - Fear from enemies
- **Varuna** - Increase cattle field
- **Vayu** - Unsteadiness
- **Kubera** - Increase of gains
- **Siva** - Auspicious

Method for Calculating Nava Vargas

The first step for calculation of Nava Vargas is to know about the “Kshetripada”. This means the area for construction and is calculated by multiplying the length and breadth of the same. By multiplying and then dividing the Kshetripada, we get the Nava Vargas.

The texts of Viswakarma Prakasika state the method in the following way:

The Viswakarma Prakasika Method

- Padam (length x width) x 9 (nava) / 8 (naga) = Aaya
- Padam (length x width) x 9 (amka) / 7 (adri) = Vara
- Padam (length x width) x 6 (amga) / 9 (nava) = amsa
- Padam (length x width) x 8 (gaja) / 12 (surya) = Dravyam
- Padam (length x width) x 3 (vahni) / 8 (asta) = Runa (Debts)
- Padam (length x width) x 8 (naga) / 27 (bha) = Nakshatra
- Padam (length x width) x 8 (asta) / 30 (Tidhi) = Tithi
- Padam (length x width) x 7 (sagara) / 27 (Ruksha) = Yuti / Yoga
- Padam (length x width) x 8 (naga) / 120 (Khabham) = Ayu (Life Span)

The Kalamruta Method:

The Kalamruta Method is as follows:

- Padam x 8 / 12 = Dhanam (Income)
- Padam x 3 / 8 = Runam (Debts)
- Padam x 9 / 7 = Vara (The Week)
- Padam x 6 / 30 = Tithi
- Padam x 8 / 27 = Nakshatra
- Padam x 9 / 8 = Ayam
- Padam x 9 / 120 = Ayu (Life Span)
- Padam x 6 / 8 = Amsa
- Padam x 9 / 8 = Dikruti

The Aaya (Income) should always be more than Vyaya (Expenditure). If Vyaya is more than Aaya, then the residents will always have financial problems.

The Yoni Should always have a reminder in odd numbers i.e 1, 3, 5, 7. Refer the below Yoni table for benefits.

Yoni Number	Cardinal Direction	Yoni	Result
1	East	Dhwaja (Flagstaff)	Auspicious
2	South-East	Dhooma (Smoke)	Inauspicious
3	South	Simha (Lion)	Auspicious
4	South-West	Svanam (Dog)	Inauspicious

5	West	Vrshaba (Bull)	Auspicious
6	North-West	Kharam (ass)	Inauspicious
7	North	Gaja (Elephant)	Auspicious
8	North-East	Kakam (Crow)	Inauspicious

Yoni calculation is an important aspect in Ayadi calculation, based on the Yoni the direction of the plot & Building is decided. Dhawaja Yoni is considered the best Yoni in Sthapatya Veda. Another important point to be observed is that all the auspicious Yonis are in line with Cardinal direction of North, South, East & West. The Plot or the building with diagonal directions & entrance from North-East, South-East, South-West, North-West is inauspicious & hence rejected. Varam with 1, 2, 4, 5, 6 is auspicious

There are 27 Nakshatras in Vedic astrology, the nakshatras with 2, 4, 6, 8, 9 as remainders are auspicious.

Amsam or Quality with the remainder 2, 3, 4, 5, 7, 9 is considered auspicious.

The above calculations are performed by an expert Vaastu Sthapathis, before one starts construction of any form of the building, it is recommended that You consult an expert to attain both spiritual & material benefits.

The construction of the house should be done with the help of Vastu Shastra and Aaya Prakaran being the most important part of Vastu Shastra must be considered. Aaya Prakaran will not only eliminate the negative energies but will also fill your house with positive vibrations and energy.

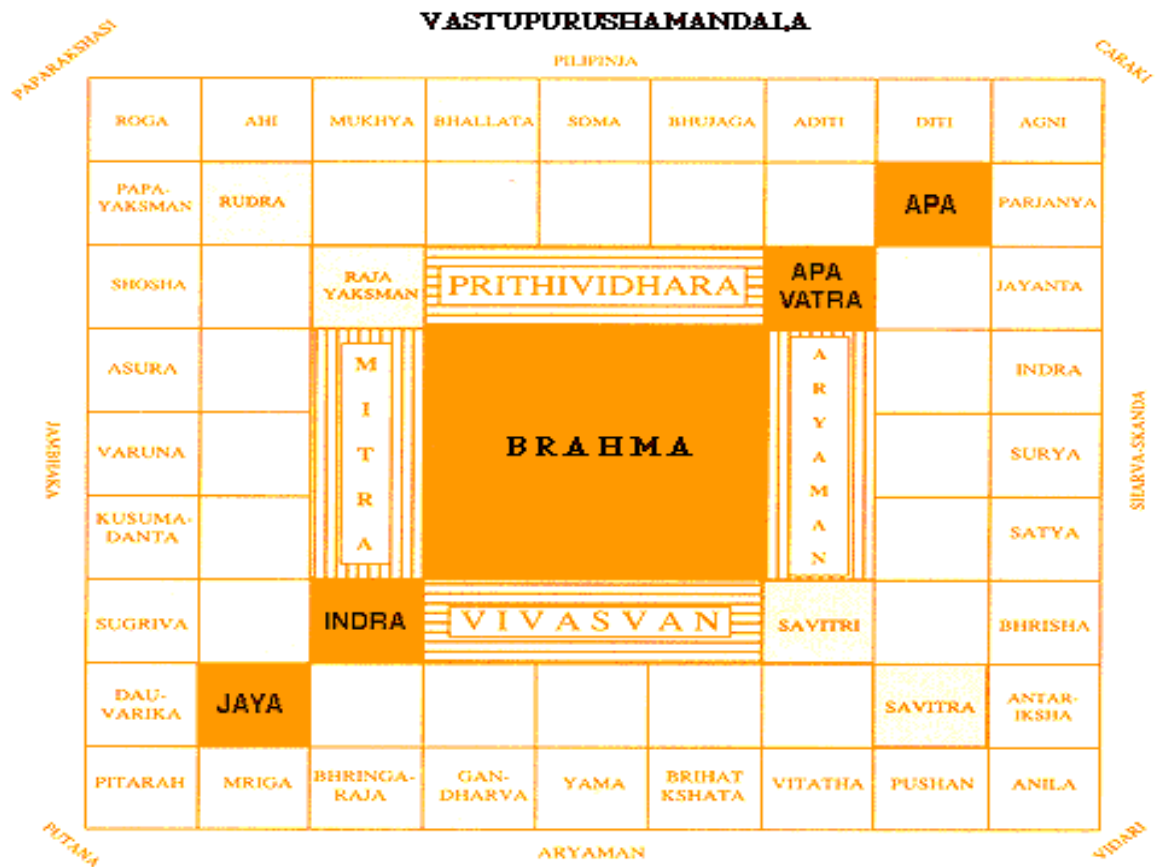
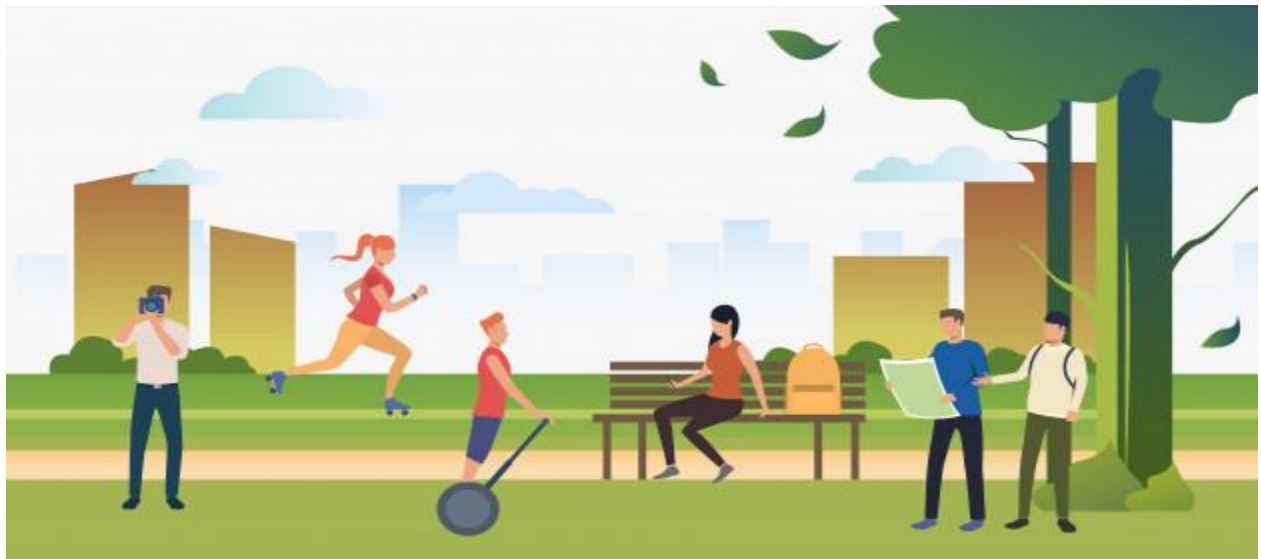
Indian temples should be adhered to Vastu because it is the place of peace and harmony where people generally seek God's grace to fulfill their wishes. There are many temples which are constructed with Vastu non-adherence and even it has been observed that such temples never prosper in terms of peace and other manner. Any improper orientation and construction of temple or shrine could bring mishaps with adverse effects. Vastu provides some prominent features that must be considered while constructing a temple.

- Every shrine must be constructed facing East direction with entrance in the same. East direction is sacred in Vastu because sun rises from here which the sole energy giver and symbol of light. Therefore according to Vastu shrine should always be constructed East facing and entrance while the idols of God facing the appropriate direction as well.

- Ensure that the plot of temple is regular shaped and avoid irregular shapes while constructing a shrine because shapes like triangular, circle or oval are prohibited & considered inauspicious.
- Shoes keeping point in the temple should be best located in Southern side while drinking or water resource can be arranged in Eastern side.
- A temple can have four main gates out of which two are ideal towards East and two in North. However if there is only one gate to the temple then best to have in East direction.
- Avoid entrance gate in the South direction and main door must be huge and stronger than other gates of temple.
- Provision for window should be made on Eastern side only.
- Place for God's idol must be higher than the ground and all the idols must placed in such way facing East while only Lord Hanuman, Lord Dakshinamurti and Goddess Kali can Face South.
- Avoid building other residential or commercial places near or front of temple. The shadow of temple should not fall on the places around the temple.
- Water storage must be located in North-east corner if under ground and over-head tank must be situated in South-west.
- Kitchen in temple must be situated in South-east corner as this is the place for element Fire.
- Charity box must be kept in East or North direction.
- Temple best on the site where there is hill, sea, mountain lies in East or North direction.

Vastu Introduction

" VASTU SHASTRA " is a voluminous and scattered ancient indian literature dealing with knowledge of architecture, iconography and art relating to structures and buildings. It comprise of independent works which are classified under the general heading of vaastu shastra.



We have to take care of the following points while studying about the vastu of the temples. Vastu consultation of temple involves a thorough analysis.

The ideal place for the consecration of the temple.

The direction and placement of main entrance

The direction and placement of god's idol which is very important

The direction and placement of the windows

The direction and placement of the worshiping place

The direction and placement of place where the religious activities will take place.

The Historical Background:

In the Vedic period, people built homes, temples and hermitages with a view to have a peaceful and harmonious living. But, in the modern world people build concrete clusters, mainly for the high rate of return.

FOR VASTU INTERNATIONAL COURSES - [CLICK HERE](#)

This race to make buildings not in line with the ancient by laws of nature has led the world into pollution, environment and ecological problems with no peace of mind under any kind of shelter. Vastu Shilpa Shastra, the ancient mystic science and the art of designing and constructing buildings finds its origin in Stapatya Veda, which in turns is a part of Atharvana Veda, one of the four Vedas. Vedas are not new to the other parts of the world and there have been people of all levels who have appreciated the depth, inspirations and insight of Vedic thoughts for many years. Our saints knew various mysterious and mystics of this vast universe even before western scientist could start finding them out. One of the systems discovered by them was VASTU SHASTRA.

**SHASTRENANEN SARVASYA LOKASYA PARAM SUKHAM
CHATURVERG PHALA PRAPTI SHLOKSHCH BHAVEDYUVAM
SHLIP SHASTRA PARIGYAN MRITYOAPI SUJETAAM VRAJET
PARMANAND JANAK DEVANAMI DIMIRITAM
SHILP VINA NAHI JAGTISHU LOKESHU VIDYATE
JAGAD VINA NA SHILPANCH VARTATE VASAU PRABHO**

Meaning – Because of **VASTU SHASTRA**, the whole universe gets good health, happiness and all round prosperity. Human beings attain divinity with this knowledge. Followers of **VASTU SHASTRA** get not only worldly pleasure but also experience heavenly bliss. With the above

shloka, it is very much clear that VASTU SHASTRA is universal. It is not confined to any particular group of people in the development of all human being irrespective of any caste, creed or religion.

Every creature in this world tries to arrange for a place in which to live comfortably, enjoying all the luxuries and happiness of this world getting maximum benefits of heavenly boons.

Every one is aspirant of having sound health, beautiful wife, healthy children, wealth, means of earning through business, profession or state service, high reputation in society and over all mental and spiritual peace. The sea animals and amphibians prepare a dwelling place on the sea shore, the birds build nests in the trees, the insects make a hive, and human beings are ambitious of making a house on the earth where all the liabilities towards this world and towards heaven can be fulfilled without any disturbance and trouble.

Therefore, aware of the need of a house and in order to avoid troubles, man wants to construct a house on such a ground where he can feel all sorts of happiness and can lead a peaceful life free of troubles and enemies, thereby deriving spiritual peace.

With this aim in his mind he sets out in search of the learned wise persons who can guide him in selection of a site (plot) of his choice, and also in construction of the house. He wants to know the proper auspicious time, and principles (laws) of construction of the house.

Also he has in mind the colony or city, neighborhood, sources of water, natural environment, means of transport, etc. while selecting a plot for building a house, at the same time he thinks of his own interests and profits. The external features of the plot can be known with the help of persons living around or nearby the flat. But the quality and nature of the land can be judged only by Shastra. Therefore the selection of a site and the plan of the building is materialised only after consultation and seeking advice of expert astrologer and Vastu Specialist.

There are saying like

Nadi Shotriyo Raja Devagyo Na Chikitasak Tatra Vaso Na Kartavaya

A place where there is no river (Source of water - pond or well etc.), scholar, astrologer, ruler and medical expert, should not be selected for living thereon, it should be rejected.

Dushta Bharya Shath Mitra Bhrtiyaschottar Dayak;

Sasarpe Ch Grahey Vaso Mirturev Na Sanshaya.

If there is house in which lives an unfaithful wife, a foolish friend, an outspoken servant and a snake, the owner of such a house may die any moment.

If such things are associated with the house constructed by some one, the life of the inmates becomes troublesome and unhappy, and there is always a fear of death.

Therefore everyone is curious to know as to what is Vaastu Shastra, and what principles and methods regarding construction of buildings have been given by the ancient saints and seers on the basis of their experience and commands in the divine scriptures. With the help of Vaastu Shastra and Shilpshastra, knowledge about the better and auspicious way of construction of a house, the positions and direction of gates, doors and rooms etc. in it, is gained so that a house may be built which will provide all round prosperity and happiness to the inmates. Thus Vastu Shastra provides some principles and rules on the guidelines of which suitable and comfortable buildings for residence, temples etc. are built and towns, colonies are planned.



Originators

The Ancient Science of Indian Architecture had become an unknown subject for the present day generation. Although, it had been described in great details by past masters; the present generation does not have even the basic knowledge about its fundamentals.

Few thumb rules have been in propogation casually here and there in their distorted versions and are treated by common man as superstitions and are practised by the so-called faithhealers in the name of vibrations out of the sixth sense and what more injustice can be there to such a great science?

Roots of Indian Architecture :

Every living being in the Universe desires to get rid of the adversities and troubles and wants to avail the various comforts and happiness of life. During that course every creature, right from the

smallest insect upto the human being wants to have a comfortable dwelling place where it can live happily.

Man, being the most advanced living being in nature, his dwelling place too should be the best among all. This need of a comfortable dwelling place, known as "house", alongwith other requirements of life was very well identified by our forefathers long back and India has the honour of being the first country in the world to boast of the origin of this "Science of House Building", known as Vaastu Shastra.

Shri Maithilisharan Gupta, a noted Hindi poet has written in Bharat - Bharati: When the entire world was in its infancy! We, the Indians, were old enough in the knowledge of almost all the subjects of life. When others were wandering in the forest without even clothes, we were living in palatial houses seemingly touching the moon in the sky.

Whatever knowledge is spread in the world, we are major contributors to it. If our ancestors had not laid down the tracks of growth with their knowledge, science would not have grown in the world. The mysteries about which the rest of the world was ignorant, we had unfolded them all in our country Hindustan.

Professor Max Mullar once quoted in his speech, "If somebody asks me that which is the country where the man has answered the most complicated problems in various fields of life and science with his mental abilities and growth, I will say that it is the country known as "INDIA".

Our Vedas are supposed to be the oldest available literature on the earth. Vedas contain the descriptions of GRIH, GEH, HARMYA, SHAALA, BHAWAN, AAGAR, and SADAN, all being synonymns of the word "House". It does mean that our ancestors used to live in well developed houses even in the Vedic period to which belong the roots of Vastu Shastra.

Originators, Teachers And Preachers :

According to the ancient literature, there had been the following eighteen (18) originators, teachers and preachers of Vaastu Shastra :

1. Brahma
2. Narada
3. Brihaspati

4. Bhrigu
5. Vashishtha
6. Vishwakarma
7. Maya
8. Atri
9. Garg
10. Kumar
11. Nandish
12. Nagnajita
13. Vishalaksha
14. Purandara
15. Shaunakh
16. Vasudev
17. Anirudh
18. Sukra

Not only houses, but temples, palaces, forts, market places, army buildings, horse stables and buildings for keeping different domestic animals were all used to be constructed on the principles of Vaastu Shastra.

Everything in this world is made of five fundamental elements - Earth, Water, Fire, Wind and Sky. Principles of Vaastu Shastra are mainly dependent on the arrangement of; five essential elements of the world i.e. Earth, Water, Fire, Air; sky in their proper order and proportions to have better living conditions in a building.

There is a correlation and a complex pattern relating to human behaviour and built environment around him. Various unseen forces affect human body vertically, horizontally, diagonally and perpendicularly. For example :

- Sun Energy
- Lunar Energy from the moon
- Magnetic Energy
- Gravitational Energy
- Molecular Energy

- Fire Energy
- Wind Energy
- Microwave Energy
- Electrical Energy
- Light Energy
- Sound Energy

Vastu Purush Mandal :

The word " VAASTU " has been derived from ' VASTOSHPATI ' used in ' Rig Veda ' and is meant to provide protection, hapiness and prosperity in this life as well as after death. Rig Veda says :

**VASTSHPART PRATI JATI HACHASMAN TVAVESHO ATBHIVO BHAVATAH |
YAT TVAMEH PRATI NATRO JUSHSVSHAN NO BHAV DVIPAD SHA
CHATUSHPADE ||**

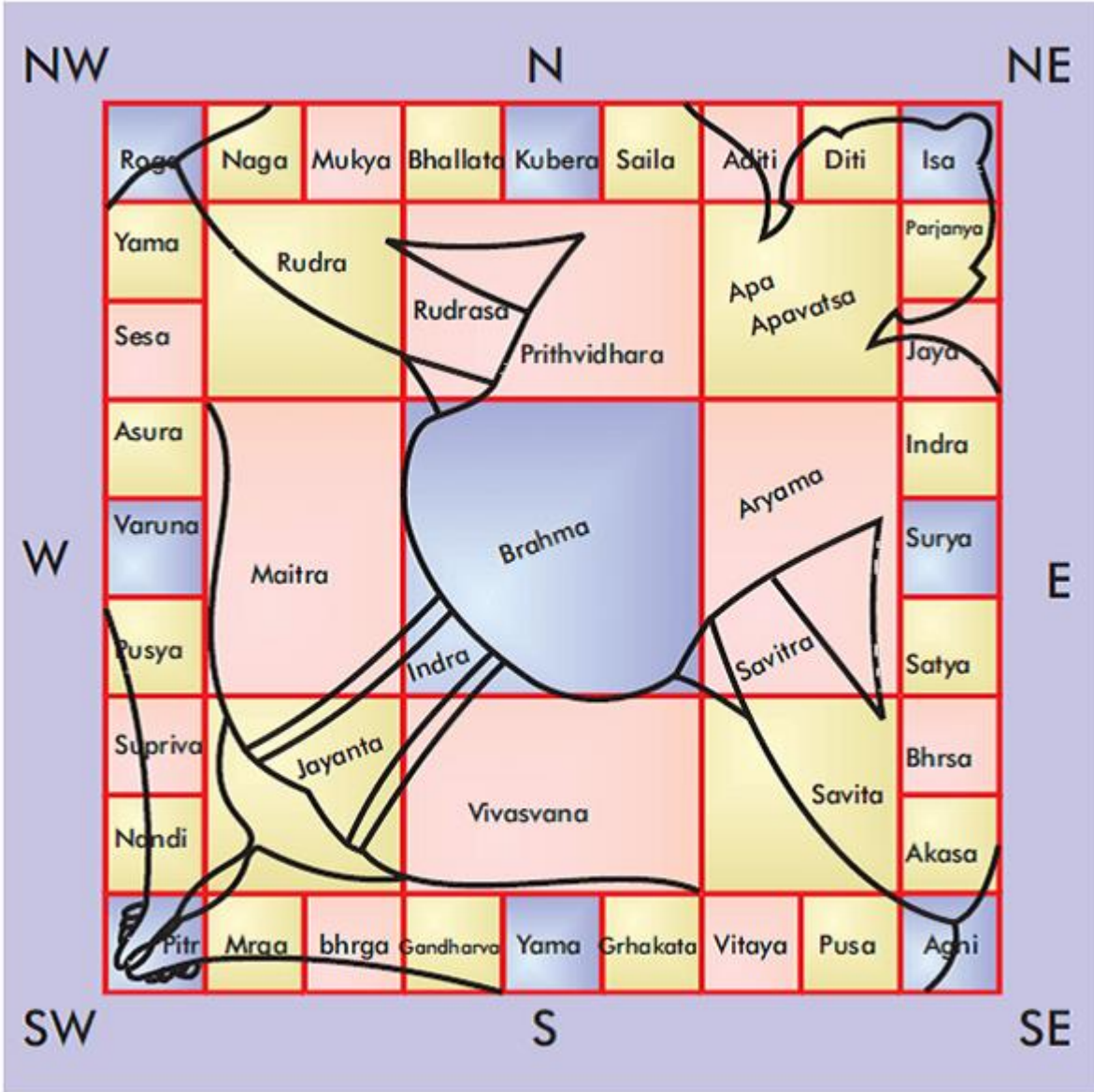
It is prayer to Vaastu purusha and means :

Oh God of structures and building, we are your devotees. Listen our prayer, make us free of disease, give wealth and prosperity, help the well being of all persons and animals living in the house.

Vastu Purusha is present in each and every plot whether it is big or small. He has a fixed and peculiar body. His head remains hanging down and his body is spread all over the length and breadth of the ground. There is an interesting story in the MATSYA PURANA in which the birth of the Vastu Purusha is narrated. By reading that story one knows why the worship of the Vastu Purusha is necessary before beginning constructing any house.

While fighting with the demon, Shiva was very much tired and began to sweat profusely. A man was born of the drops of Shiva's sweat. He looked very cruel. He was very hungry. So he began to make penance to appease Lord Shiva and get a boon from Him.

Shiva was pleased with his penance and appeared before him. The devotee prayed to Shiva, "Oh Lord! Please permit me to eat away all the three worlds." Shiva said, "Let it be so." The devotee's joy knew no bounds. He got possession on all the three worlds and first he was ready to eat the terrestrial world. Then the celestial beings, Brahma, Shiva and the demons (Rakshasas) also were terrified and caught hold of the devotee encircling him.



Forty-five celestial beings, out of whom 32 from without and 13 from within caught hold of the devotee. The Thirty-two celestial beings are :

- (1) ISH/SIKHI (2) PARJANYA (3) JAYA/JAYANTA (4) INDRA (5) SURYA (6) SATYA (7) BHRISHAM (8) AKASH (9) AGNI (10) PUSHA (11) VITATHA (12) GRIHAKSHAT (13) YAMA (14) GANDHARVA (15) BRINGARAJA (16) MRIGA (17) PITRA (18) NANDI (19) SUGRIVA (20) PUSHPADANTA (21) VARUNA (22) ASURA/DAITYA (23) SESA (24) YAKSHMA (25) ROGA (26) NAGA (27) MUKHYA (28) BHALLATA (29) SOMA/KUBER (30) SAILA/BHUJANG/SARPA (31) ADITI and (32) DITI.

All these 32 celestial beings are out of the limits of the devotee whereas the following 13 Beings are within his limits:

(1) BRAHMA (2) RUDRA (3) INDRAJAYA (4) APAVATSA (5) MARICHI (6) SAVITRI (7) VIVASWAN (8) VISHNU (9) MITRA (10) SAVITA (11) PRITHVIDHARA (12) RUDRA and (13) APA.

These celestial Beings laid force on the different limbs of the devotee and sat on them as shown below:

ISH (AGNI) – head; APA - face; PRITHWI DHARA; ARYAM - Chest; AVANTSA - heart; DITI; INDRA - Shoulders; SURYA; SOMA - Hands; RUDRA; RAJAYAKSHMA - left arm; SAVITRA; SAVITA - right arm; VIVASWAN; MITRA - Stomach; PUSHA; ARYAMA - Wrist; ASUR; SESA - left side; VITATHA; GRAHAKSHAT - right side; YAMA; VARUNA - Thighs; GANDHARVA; PURAMADAN - on the knees; SUGRIV; BHRISH - shanks; DWARIKA; MRIGA - ankles; JAYA; SHAKRA - on the hairs grown on the feet; BRAHMA - on the heart.

Being bound like that, the devotee lay down there only. Since then, he has been lying there surrounded by the celestial Beings and thus he was called “the God of Vastu or VASTU PURUSHA”.

You will be known as ‘VASTUPURUSHA’. You will tease the people, to your heart’s content, who construct buildings and temples, dig wells and tanks on the side towards which you see and in the direction towards which you hold your feet. You may trouble and even devour those people who construct the aforesaid buildings and temples etc.

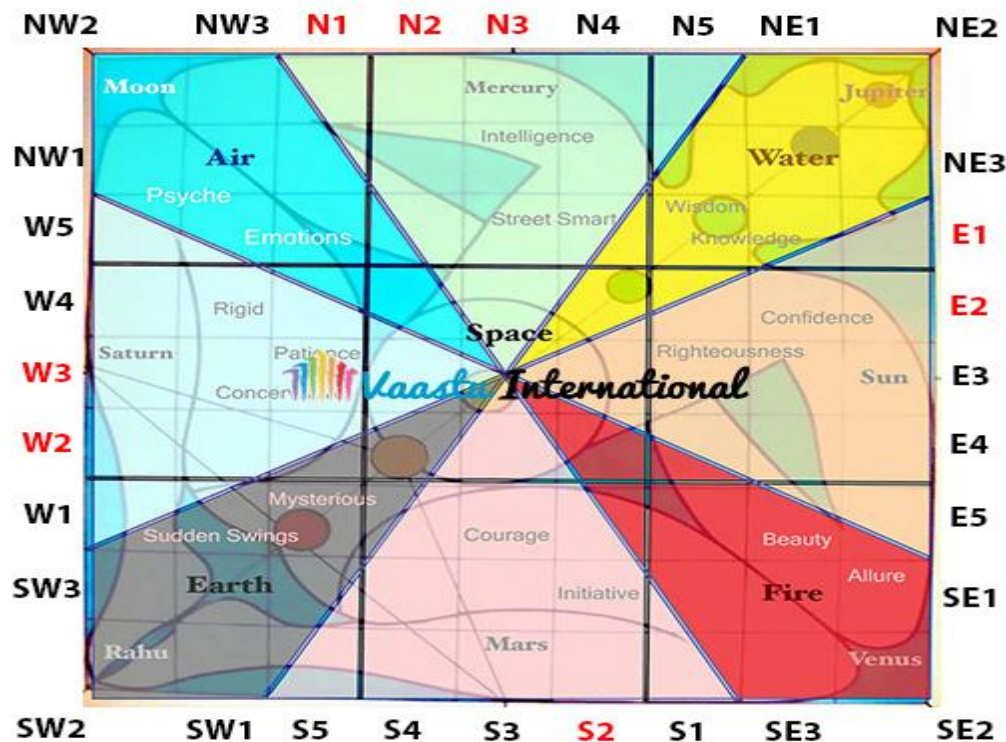
In the direction where you lay your head and back and those who lay foundation stone without worshipping you or without satisfying you with ‘Homa’ and the like. Then the Vastu Purusha was quite satisfied. Since then the worship of Vastu-Purusha has been in vogue and it has become compulsory for those who want to construct any kind of building.

Vastu Purusha, being arrested like this, said to the Gods, “Oh, Celestial Beings! you have all caught hold of me and tied me on all the sides. How long shall I be like this, in this position hanging my head down like a prisoner? What shall I eat?”

Listening to those words, the celestial Beings said, “Today is Bhadrapada Shukla Triteeya Saturday and ‘Visakha Star’; So you lie down here on the ground changing your position once in

three months, i.e. from 'Bhadrapada' to 'Kartik' you lie down putting your head in the Eastern direction and your feet towards the West.

During the months of 'Margashira', 'Pushyam' and 'Magha', you lie down towards the South looking towards the West and put your feet towards the North; during the months of 'Phalgun', 'Chaitra' and 'Vaisakh' put your head towards the West and feet towards the East, looking towards the North; in the months of 'Jyeshtha', 'Ashadha' and 'Sravana', put your head towards the North and the feet towards the South and look towards the East. Whatever side you may turn, you will have to lie down on the left side only.



Results of Doors in 32 Padas

1. Ish / Shikhi (NE2) - Fear of fire
2. Parjanya (NE3) - More of a girl child.
3. **Jayant (E1)** - Good profit of money or wealth
4. **Indra (E2)** - Get royal pleasure or happiness
5. Surya (E3) - More increase anger
6. Satya (E4) - More telling lies
7. Bhrusha (E5) - More cruelty
8. Akash (SE1) - Fear of theft.

9. Anil (SE2) - Less children
10. Pusha (SE3) - Lead to servitude.
11. Vitatha (S1) - Lead to meanness
12. **Gruhakshata (S2)** - Money and prosperity
13. Yama (S3) - Increase in fear of death
14. Ghandharva (S4) - Causes poverty
15. Bhringraj (S5) - Government lead problems
16. Mrig (SW1) - Problems to children
17. Pitra (SW2) - Short life and poverty
18. Dauwarik (SW3) - More expenditures.
19. Sugreeva (W1) - Loss of money.
20. **Pushpadant (W2)** - Increase in money.
21. **Varun (W3)** - Increase in luck or happiness.
22. Asura (W4) - Fear of royalty.
23. Shosha (W5) - Increase in money and illness.
24. Paapyakshma (NW1) - Illness and accumulation of sin.
25. Rog (NW2) - Fear of fights and conflicts.
26. Naag (NW3) - More enemies in relatives.
27. **Mukhaya (N1)** - Gain in male child and money.
28. **Bhallat (N2)** - Gain of wealth or prosperity.
29. **Som (N3)** - Male child and wealth.
30. Bhunjang(N4) - Enmity with the son.
31. Aditi (N5) - Wickedness in ladies.
32. Diti (NE1) - Becomes poor.

AHMEDABAD: The Gujarat high court had ruled in 2011 that religious structures cannot be built on land which has permission for a residential building only. The court made it clear that without prior permission from the civic and police authorities, a religious building cannot be constructed in a residential colony.

The court was dealing with a case, where the construction of a Jain temple on a plot of Vasantkunj Society in Paldi was objected to by a couple of residents of the colony. Upon the court order, AMC asked one Ratnayatri Aradhana Bhavan Trust to first stop and then remove

construction of Aradhana Bhavan, as the building was being constructed without due permission under the municipal corporation's laws.

The trust also approached the court against AMC's action, but the court was of the opinion that General Development Control Regulations (GDCR) make a clear distinction between residential buildings and religious buildings. "Residential buildings will not attract crowds, but at the same time, community buildings, may be for any purposes, like a community or marriage hall, recreational club or religious building, attract crowds. Parking space is provided to be 15% of maximum permissible FSI in residential buildings, whereas in the matter of community buildings it is 50% of a building unit. It is at this juncture that two uses of a building make a difference," the court opined.

The court further made it clear that till the time the structure is used as residential building for sadhus and sadhvis, there cannot be any breach of regulations. But if it is used as a religious building and attracts crowds on a regular basis, it is a breach of regulation.

After Ahmedabad Municipal Corporation assured the court that it would take all necessary action in this regard, the court disposed of the plea objecting to construction of the temple. However, the court also directed AMC to grant an opportunity to the trust to present its case and take a decision only after hearing the religious body.

Temple Vastu: vastu originated as architectural science in India, but nowadays the vastu SOPs are being sold as troubleshooter remedies.

In my personal opinion I believe that all Indian predictive sciences /remedies are offshoots of astrology.

Theory of Indian Temple Architecture & Hindu Vastushastra

A house is designed considering the requirements of the person staying in it. Similarly a temple needs to be designed according to comfort of its resident, the main God, other Deities along with him and devotees. Being the residence of almighty, a temple has deep-rooted religious feelings attached to it; hence every corner has to be designed with extra care. The Hindu scribes, ancient saints have deep study of the five main aspects (Abhutas) of the universe. They are 1) Sky (Brahmand) 2) Fire (Agni, the Sun) 3) Air 4) The Earth (Prithvi) and 5) Water.

They had no binoculars, but they had detailed knowledge of the constellation of stars

(Nakshatras), Directions (Disha) and their effects on whole world and even on each human being. These Saints have detailed guide lines for designing every corner of the temple along with religious as well as scientific explanation for the same.

It starts with main deity for whom temple is made. The direction of where the main entrance varies from deity to deity. East side direction entrance is best for most of the deities. Second choice is west or north, but not south. Gods like Shree Kali Mata prefers south side entrance only. Shree Hanuman, (a son of Air) has no problem with any direction. He will be more powerful at facing south direction. Not even the entrance but the size of temple depends on constellation of stars (Nakshatra) at particular direction. And depending on that, there is list of permissible sizes of the temple specified by the Vastu Shastra. Every Nakshatra has different list of sizes. The sizes are given in ancient units, which can be converted in to feet (British System) easily. It can be converted again in meters (metric system). It also decides sizes of rooms of all deities (Garbha Griha), heights / sizes of plinth, columns, slabs, Parikrama and even square area of the temple. We still have our associate gurus (guides) who give us all the supporting information and guidance.

It is always protected by all main four deities of the four directions as follows-

- 1) Shree Indra (king of Gods) at East,
- 2) Shree Varuna (God of rain, water) at west,
- 3) Shree Kubera (God of wealth) at north
- 4) Shree Yama (God of death) at south.

Besides giving the temple a typical look, the style of providing offsets to walls and domes (Shikhara) have structural advantage. It gives support to tall dome which can stand for long period even during earth quake. The angles, sizes and proportions of these offsets are also specified. There are many aspects like these in Temple Vastu Shastra which are written in various ancient Granthas (Ancient holy books of Hindu religion) separately. We better follow these aspects while designing a temple for every deity.

Vastu For Temples

The aim of human life is to wish for the welfare of all while carrying on the responsibilities of worldly deeds. For all sorts of good deeds, towards the family and other people, for inspiration and performances, all deeds are closely related to building a house. For benevolence point of

view every one should contribute and co-operate with the government bodies in the plans of constructing and managing Dharam-shalas, well, pond temple, grains depot etc., and also such deeds should be performed individually by everyone.

In olden times, rich and wealthy persons had been materialising such plans under the culture and religious activities in our country. In modern period also educational institutions Dharamashala, Rain Basera (overnight camp), water hut, temple, etc. are constructed and are managed for the benefit of common people by donors and wealthy persons in the society. Welfare of all is possible only when every one in this world bears the responsibility of carrying on the business of the world by his good deeds thinking the supremacy of the creator of this world in himself.

Objective of the man in this life is not only the welfare of himself and the family, but also everyone has to earn reward for good deeds (Punya) such as construction of temple etc. for which he receives in return fame and growth of family; other people also get inspiration from such noble deeds for benevolence.

There are so many ways of benevolent deeds. Construction of temple, well or ponds for drinking water for the public, Dharamshala etc. are some important deeds. Vastu Shastra has described the importance and types of such works.

Those who get a temple constructed at a beautiful site, where there are lush gardens and sufficient water in wells, ponds etc. for the sake of enhancement of religion and fame, will definitely gain heavenly pleasure. The land of construction of a temple should be tested; only such land is good and auspicious for construction of a house; selection should therefore be made as per directives given for selection of site elsewhere in this book.

For construction of temple, Vaastu-pad of sixty four squares should be made. Main gates should be constructed in the centre of all the four sides, which is auspicious. Half of the breadth should be kept for the Garbhagriha (Central room where idol is to be placed). All round the Garbhagriha, on hath (cubit) wide path should be provided for circumambulation (Parikrama) and then the wall be constructed around it. One fourth of the breadth of Garbhagriha should be the width of the door. Height of the door should be twice the width of door. The temple or place of worship should be in the north-east portion of the building. This is the best direction for worship and prayers according to Vastu Shastra. Though all the directions are good and auspicious by the

grace and kindness of the supreme God, but self-satisfaction and spiritual peace is obtained only from prayers offered in the north-east direction.

In south India even today we find the live proofs of temples constructed as per principles of Vaastu Shastra. These are strictly in conformity with the principles laid down in Indian culture and Vaastu Shastra. Buildings which have been constructed after proper auspiciousness of the land etc. are famous and popular throughout the world.

Takshshila University, Mohenjodaro, Taj Mahal, Several palaces and temples in India have a prominent place in the art of Vaastu not only in India, but in the whole world.

In South the Tirupati Balaji temple, Rameshwaram temple, Meenakshi temple in Madurai, Vivekanand memorial in Kanyakumari, Jagannath temple in Puri, Badrikasram in the north, Kamakshyadevi temple in Assam, Vishwanath temple in Varanasi, are some such places where people feel mental and spiritual peace as desired.

Whether it be a temple of a well, pond etc. or a house, it is the proper selection of land and direction etc. and construction at proper and auspicious time (muhurt) according to the principles of Vaastu Shastra, that its fame spreads far and wide even after thousands of years have passed. Those buildings which have become by Vaastu-Shanti and Vaastu Pooja. It is good and auspicious to do so, as it will remove default regarding Vaastu if any from that building.

North-East direction is very important in the construction of a building. This direction should be very well considered. No large and heavy rooms or materials should be kept in this portion. The owners cannot progress if they do so, nor can the inmates develop and flourish. If this portion is extended outwards and open, it provides all happiness, mental and spiritual peace prosperity and progress.

North-East direction is best for offering prayers to God, so temple or Pooja room should be made in this direction and it is auspicious to offer prayers and worships sitting face towards east or north.

Dakshinayan and Uttarayan must be considered for consecration of idols. It is auspicious to establish and consecrating the idols of Shiva ling in the month of Shravan, of goddess Durga (Bhagwati Jagadamba) in Ashwin, and lord Vishnu in Margshirsh. Gods having hot temper, such as Bhairav, Narsingh, and Mahishasur Mardini Durga should be established and consecrated in the period of Dakshinayan and those of calm noble temper in the period of Uttarayan. The day, date (tithi), Paksh (fortnight), constellation, Lagna etc. should also be considered for the purpose.



Actor Will Smith is a Hindu

Religious Vaastu - Temples

- We find that in many ancient temples these rules are observed. That is why people have faith in those places. They are considered potent by devotees and they make sacred vows at these places and find that their vows are fulfilled. These effects are observed to a lesser degree in some other temples.
- The slope of the land surrounding the temple in the east and the north direction should be in the north-east corner.
- The priest should not live in any of the rooms in the temple complex. He should live outside the temple premises otherwise, he will have to face a lot of difficulties.
- The sanctuary, the height of the idol, kind of stone of which the idol is made and its colour, the height of the lap from the ground on which the idol is placed, the height of the pinnacle and the metal used for the pinnacle, the height of the discourse hall, number of pillars used for this hall, their colours etc. should be carefully studied from the viewpoint of Vastushastra.
- The height of the discourse hall in front of the temples should be less than the height of the main temple. The stage should be to the west of the hall.
- Fountains or lotus ponds in front of the temple should be in the north-east direction.
- Before entering the temple premises, on the south side, there should be an arrangement for keeping shoes and to the east arrangements should be made for water to drink and to

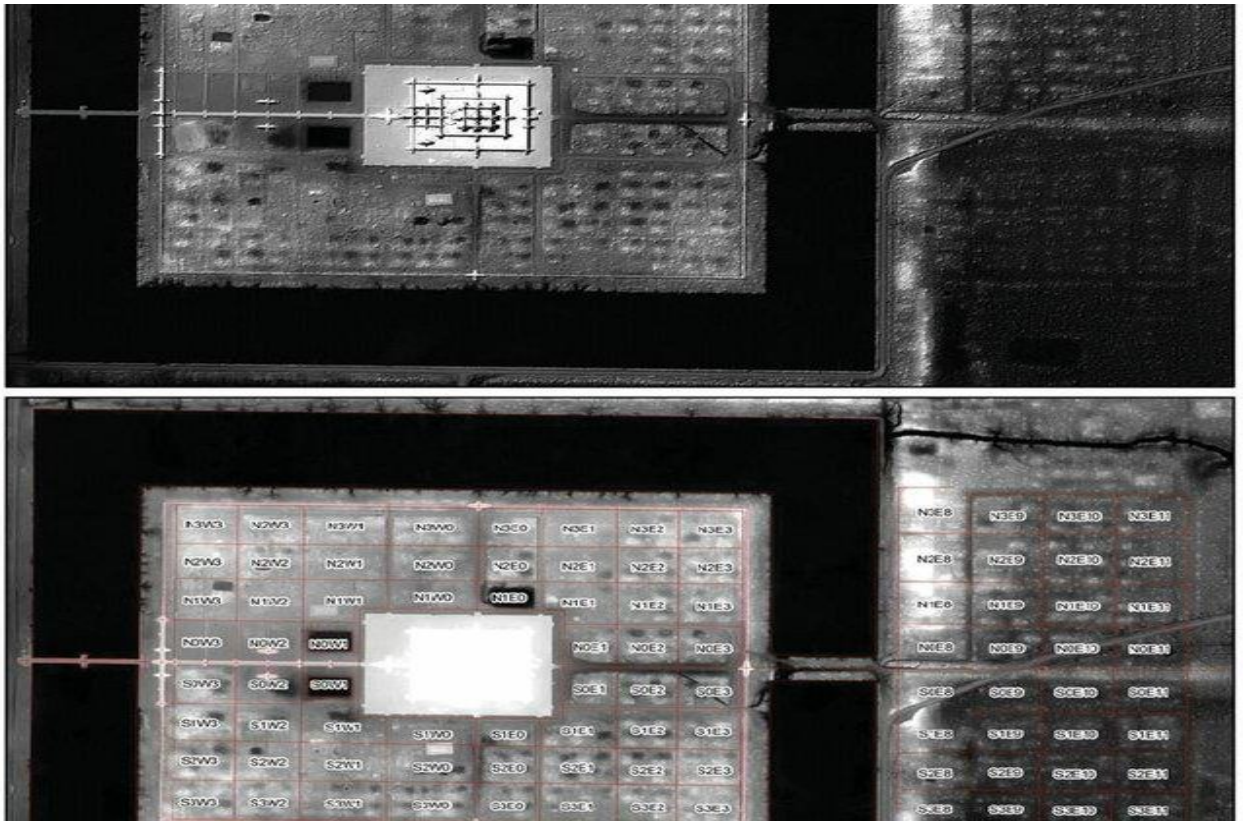
wash the feet and hands etc. The bathrooms should be in the east. Toilets should be outside the temple premises.

- In front of the idol, outside the temple, on the left side the victory tower should be situated. It should not be in the north-east direction. Deepstambha (pillar for light), Agnikund (earthen pot in which the fire is built) and Homkund (Pit for sacred fire) etc. should be in the south-east corner.
- After the construction of the temple is completed with due regards to the favorable constellations, time and day, the idol should be installed. The installation of the idol and the raising of the pinnacle should be done simultaneously. The world famous, wealthy and a place of faith for infinite no of devotees, Tirupati Balaji temple is one of the finest examples of Vastushastra. Different logical arguments and spiritual analysis are made about the Balaji mandir. Tirupati Balaji is an incarnation of Lord Vishnu. There was a clash between Lord Vishnu and Laxmi. As a result Lord Vishnu appeared in his new incarnation as Tirupati Balaji at Tirumala Hills in Andhra Pradesh. Laxmi appeared at Mahalaxmi in Kolhapur in Maharashtra. Balaji married with Goddess Padmavati. At this time Varahswami was the Guru of Tirupati Balaji. The marriage of Tirupati Balaji was a very expensive affair. At that time Balaji took a big loan from Kuber. For paying off this debt, infinite number of devotees of Balaji are making their contribution in the pot placed at Kubersthan in the northern direction of the temple in the form of cash, gold and other valuables. Bajaj on his part for paying of the debt of these devotees helps them in the prosperity of their business.
- If the temple premises there are smaller temples of other Gods, only the temple of Lord Hanuman & the Goddess Kali can have face towards the south.
- No parking arrangement should be made in the temple premises. It should be out side the temple in the east or the north side.
- There should be no fan in the sanctuary of the idol. This spoils the magnetic environment.
- For building religious Vastu temple, first of all, it is necessary to choose the proper site.
- The plot of the temple should be square or rectangular in shape. The magnetic north-south poles of the plot should be parallel. This means that the four major directions, the east, the west, the north and the south should meet the plot parallely and not in the corner.

- Compound wall around the temple in all the four directions is very essential. Entrance gate on the east side of the compound wall is the best. Entrance gate on the north side is tolerable. It is very auspicious to have four entrance gates to the main temple building. At least one in the east and one in the north if there are two gates and if there is only one it should be in the east. Only it should not be in the south direction. The main entrance gate should be taller than other doors and should be decorated.
- The sight of the principal idols stare in the temple should be trained on the seventh part of the door if the door is divided into nine parts. No building, office, electric pole, tree, shed etc. should come from the idol's stare. There can be entrance gate or road in this direction.
- The orchestra should be in the north-west direction of the hall. The colour of the pillars and the flooring of the hall should be white, yellow or light saffron.
- There should be a window to the east of the sanctuary such that sunrays fall unobtrusively on the idol from 6 a.m. to 9 a.m. There should be no room behind the sanctuary. There should be arrangement for circumambulation around the temple and the sanctuary.
- There should be no place for breaking coconuts in the sanctuary. Water from the coconut should not be sprinkled on the idol. The place for breaking the coconut should be outside the temple in the east or the north leaving the north-east corner.
- The sanctuary of the main God should be at a higher level from the ground. The devotees should not touch the idol. No one except the Pujari (Worshipper of idol) should enter the main octagonal part of the sanctuary.
- If such places are situated on a tall hill or mountain, the population is thin. This helps in maintaining the austerity of the God. The shadow of the temple should not fall on other buildings. In front of the temple there should be no building of any type. These objectives are fulfilled on a hill or mountain.
- Marriage ceremony and any other ceremony should not be performed in the temple premises. If at all they are performed, it should be in the open space around the temple in the west or in the south side.
- By dividing this place into four equal parts the main structure of the temple with Subhamandap (lecture-hall) should be in the south-west part. Godowns and shops should

be in the north-west part, Water storage tanks, wells etc. should be in the north-east part, Kitchen, rest houses etc. should be in the south-east portion.

- In the open space surrounding the temple Basil plant with raised bed should be in the east, Jasmine, White Champak, Star Coral plants etc. should be in the north-west corner or the east. Four approach roads are very useful. Charity boxes or pots in the temple should be in the east or the north. The divine gift place should be in the east or the north-east.
- The bell should not be in the sanctuary. It should be outside the sanctuary. There should be no microphones, speakers or any other electrical equipment in the sanctuary. They can be outside the sanctuary. Around the chief idol in the sanctuary there should be square, rectangular octagonal or circular construction or pillars. The pillars or the construction should not be hexagonal.
- If there is a sea, river, tank, take etc. in the east or the north direction, such a plot is, the best place. Because of this, there is natural slope in the east or the north directions.



CHAPTER V

MANDALIC COSMOLOGY OF THE JAIN TEMPLE

There is no set definition for the meaning or even the form of a mandala, nor could there be, since it appears in the art and architecture – in one form or another – of various cultures around the world. The image and use of the term first appear in India via the Hindu text known as the *Rig Veda* c. 1500 - c. 500 BCE where it is an image and also the name of the books which comprise the work. It was, and is, also used as a meditative tool and spiritual exercise in the belief systems of Jainism, Buddhism, and Shintoism, appears in Persian art, as the Ishtar Star Symbol (and others) from Mesopotamia, figures in Mesoamerican architecture and Native American art, and was used by the Celts of the Iberian peninsula and Northern Europe, to name only a few cultures.

This chapter allows us to see how icons and scriptural exegesis are linked in Jainism. In early days, Temples served as the major landmarks of the land. A place was recognized either using the palaces or temples. As the palaces were prone for being ruined due to assault, temples served as the chief landmark for the passengers travelling on foot or carriages from afar. It was a beacon-a light house to guide the visitors.

Although Mahavir often referenced as Jainism's founder, he is known by adherents as the 24th *tirthankara* ("ford builder"), one in a long line of enlightened souls who recognized the illusory nature of existence and freed themselves (and then others) through adherence to a strict spiritual discipline which broke the cycle of *samsara* and led to liberation. Jains observe this same discipline in the hope of reaching the same goal. Jain mandalas illustrate this path and discipline through images of Mahavira (or an earlier *tirthankara*) in the center of a circle enclosed by ever-widening squares in which representations of various divine spirits (*devas*) or life-conditions appear. The details of a Jain mandala vary but, frequently, Mahavira appears in the center and the observer is invited to travel the image from the outer rim of distraction and illusion toward the central truth revealed by Mahavira. An observer, in the stillness of contemplation, is thereby provided with a kind of spiritual map of the Jain path.

Samavasarana In Jainism, **Samavasarana** or **Samosharana** ("Refuge to All") is the divine preaching hall of the Tirthankara. The word *samavasarana* is derived from two words, *sama*, meaning general and *avasara*, meaning opportunity. It is a place where all have 0 in Jain art. The Samavasarana seems to have replaced the original Jain stupa as an object of worship. In samavasarana hall, the *tirthankara* sits on a throne without touching it (about two inches above it). Around the *tirthankara* sit the *ganadharas* (chief disciples). Living beings sit in the following order.

- In the first hall, ascetics
- In the second hall, one class of deva ladies
- In the third hall, *aryikas* (nuns) and laywomen
- In the next three halls, three other classes of deva ladies

- In the next four halls, the four classes of devas (heavenly beings)
- Men, in the eleventh hall
- Animals, in the last hall

According to Jain texts, there would be four wide roads with four huge columns, Manasthamba (literally, pride pillar), one in each side. The total size of the hall varies depending upon the height of the people in that era. The size of Rishabhadeva's samavasarana was 12 km² (4.6 sq mi). In samavasarana, a tirthankara sits facing the east, but appears to be looking in all directions. Tirthankara sits on a soft cushion while preaching the Jain philosophy in plain terms.^[7] All humans and animals can understand the discourse. Jain scriptures say that all creatures who listen would become less violent and less greedy. The speech of the tirthankara is distinctly heard by every one present.



Samavasarana in the architecture of the Jain temple; as a material reflection of the ritual, is similar to the Hindu and the Buddhist architecture; it is obvious that the ritual at that time was in general similar to that of Hinduism. The symbolic saturation of the temple space gradually grew, the philosophical concepts embodied in the iconographic program became more complicated and one of them is the idea of *Samavasarana* of Jina.

Initially Jainism did not postulate the worship of images. The monks, in particular, did not need images at all, conducting mental bhāvapūjā with recitation of ancient hymns. Everything external (including sculpture) was involved solely for the sake of the lay donators, the part of the community that provided material support. The images of donators are also present in the iconographic program of the temple. The yakṣa, located on the left and the yakṣiṇi, located to the right of the entrance to the temple, are sasanadevatas, the guardian deities of

Tirthankara; they are the protectors of the Jain teaching [1]. According to Harivaṃśapurāṇa of Jinasena (783 AD.), Indra appointed a pair of Yakṣas to each Tirthankara. At the same time they are gods who bestow welfare, as indicated by their corpulence and abundance of jewellery decorating their bodies. Such deities, located in the entrance areas of the temple, provide material benefits to the community.

Moreover, in contradistinction to Hindu theologians, Jain believes that Tirthankara is not present in its image; therefore, it is obviously useless to offer prayers to it. Only yakṣas can give an answer and help. It is an important feature of Jain religion that was reflected in iconographic program of temples. The Tirthankara has already left the circle of rebirth; he is not present in this world. Lawrence A. Babb introduced the concept of "Absent Lord". Liberated Jina conquered all his passions, affections, and desires. For this reason, all the rituals and offerings, as well as musical performances, are virtually unnecessary [2]. Tirthankaras cannot interact with the worshippers, responding to their requests, which reduces all the efforts of the ritual to naught. However, in reality, sufficiently developed worship rituals indicate that most Jains believe that in some way Jina is present in his image. A formula was introduced according to which the offerings accepted in all religions, the believer does not bestow upon the deity, but simply leaves all this in the temple nearby his image [3].



Khajuraho

The Temple as Cosmos



It is interesting to see, that the temples in Khajuraho the Jain temples follow a similar system,

with various divinities, both Yakshas, and Tirthankars, along with the Dikpalas, shown on the outer walls. are depicted as the centre of the universe, or the focal point of the entire cosmos, with every icon in place according to the respective philosophical systems. Thus, when we circumambulate the temple, we become a part of this cosmic system as well, through the divinity which rests within us. *The temples, therefore,* are so much more than just the idols and sculptures. Seen as they are meant to be, they represent the cosmos itself! the architect has conceptualized the temple as Mount Meru, the centre of the universe.



Niches on one of the Jain Temples, the lower one a Tirthankar, and the upper one, a deity, probably a dikpala.

MANDALA ELEMENTS OF JAIN TEMPLE ARCHITECTURE

It was the later half of the 7th century that the Jain temple structures of India began to acquire a definite form with consolidation of design structures all over India.

Elements of Hindu temple:

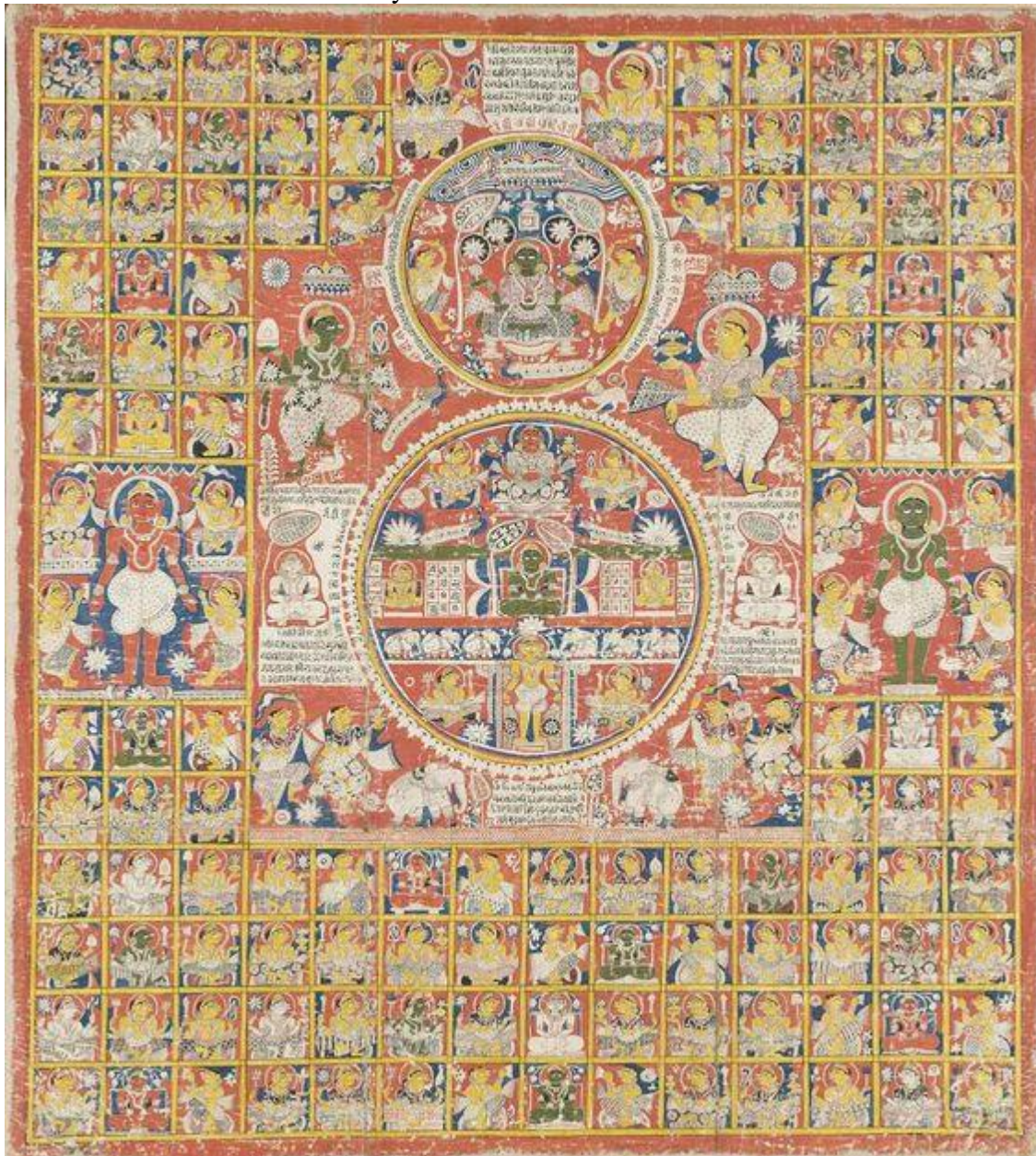
1. 'Ardhamandapa' meaning the front porch or the main entrance of the temple leading to the mandapa. It unites the main sanctuary and the pillared hall of the temple. 'Antarala' meaning the vestibule or the intermediate chamber.
2. 'Garbhagriha' meaning the womb chamber. The shape and the size of the tower vary from region to region. It is the pyramidal or tapering portion of the temple which represents the mythological 'Meru' or the highest mountain peak. 1. 'Sikhara' meaning the tower or the spire. The devotees walk around the deity in clockwise direction as a worship ritual and symbol of respect to the temple god or goddess. There is an enclosed corridor carried around the outside of garbhagriha called the Pradakshina patha' meaning the ambulatory passageway for circumambulation
Garbhagriha (cella or inner chamber). the lower portion inside the Vimana is called Shikhara and upper as the Vimana is called as the Sikhara. The visitors are not allowed inside the The chamber is mostly square in plan and is entered by a doorway on its eastern side. It is nucleus and the innermost chamber of the temple where the image or idol of the deity is placed.
3. 'Gopurams' meaning the monumental and ornate tower at the entrance of the temple complex, specially found in south India
4. 'Mandapa', is the pillared hall in front of the garbhagriha, for the assembly of the devotees. In some of the earlier temples the mandapa was an isolated and separate structure from the sanctuary known as 'Natamandira' meaning temple hall of dancing, where in olden days ritual of music and dance was performed. It is used by the devotees to sit, pray, chant, meditate and watch the priests performing the rituals.
5. The Amalaka the fluted disc like stone placed at the apex of the sikhara.
6. 'Toranas', the typical gateway of the temple mostly found in north Indian temple
7. 'Pitha', the plinth or the platform of the temple

In order to make easy the roaming folk to recognize the locations easily, the Gopuram's of the temples had to be built elevated. That tiled way for the elevated Gopuram's. By way of seeing the Gopuram's form expanse, passengers planned the approximate distance of their target from their location. Gopuram's were built extremely high to serve as landmarks as well as for traveler distance's.

Additionally, temples served as the main protection for travelers. When people travel between places, they stay at the temple building to take rest. Before they commence the new part of their journey, they would respect God and begin.

Representatively, the **Temple Gopuram** or the access to the temple represents the feet of the divinity. A devotee bows at the feet of the Lord at the entry as he steps into the temple and proceed towards the chamber, leaving behind the world of contradiction. A *Gopura* is usually constructed with an enormous stone base and a superstructure of brick and support. It is rectangular in sketch and topped by a barrel-vault roof crowned with a row of finials. When viewed from apex, the Gopura too resembles a mandala; with sculptures and carvings of Yalis and mythological animals to be found in the outer enclosed space. Humans and divine beings are

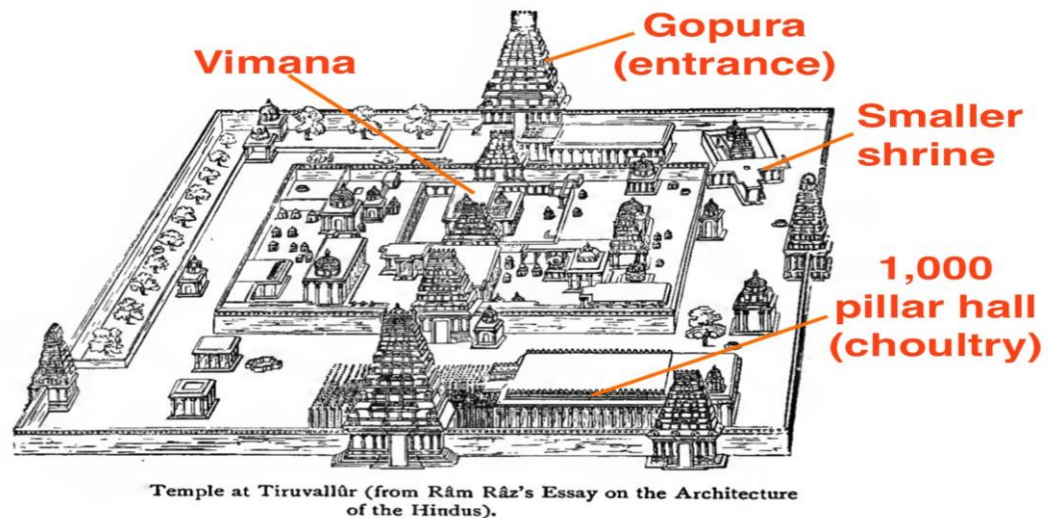
in the central enclosures. The crest of the *Gopura*, the *Kalasha*, is at the centre of the *Mandala*. These sculptures follow a selection of themes resulting from the Hindu mythology, mainly those associated with the presiding idol of the temple where the *gopuram* is positioned. Gopuras come into view to have inclined revision in the temple plan and outline. The spaces just about the shrine became hierarchical; the further the space was from the central shrine, the lesser was its distinction. The farthest ring had buildings of a more practical or a secular nature – shops, dormitories, sheds, workshops etc., thus transforming the temple from a merely place of worship to the center of a vibrant alive city.



A JAIN MANDALA WITH PADMAVATI-GUJARAT, NORTH-WEST INDIA, 17TH/18TH CENTURY

A **mandala** (emphasis on first syllable; Sanskrit मण्डल, maṇḍala – literally "circle") is a geometric configuration of symbols. In various spiritual traditions, mandalas may be employed for focusing attention of practitioners and adepts, as a spiritual guidance tool, for establishing a sacred space and as an aid to meditation and trance induction. In the Eastern religions of Hinduism, Buddhism, Jainism and Shintoism it is used as a map representing deities, or specially in the case of Shintoism, paradises, kami or actual shrines.

In New Age, the mandala is a diagram, chart or geometric pattern that represents the cosmos metaphysically or symbolically; a time-microcosm of the universe, but it originally meant to represent wholeness and a model for the organizational structure of life itself, a cosmic diagram that shows the relation to the infinite and the world that extends beyond and within minds and bodies.



MANDALA:

Religious meaning

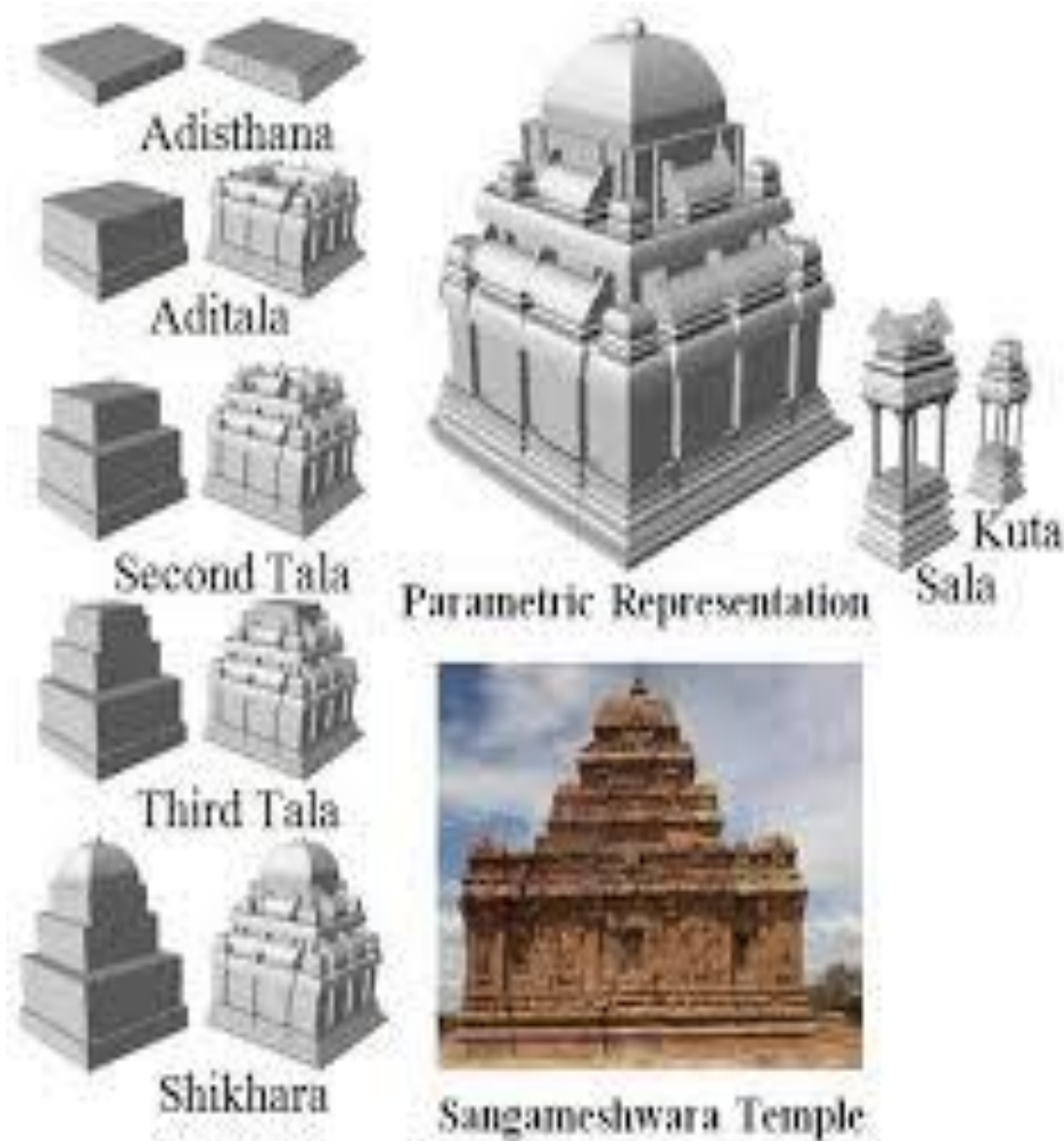
In Hinduism, a basic mandala, also called a *yantra*, takes the form of a square with four gates containing a circle with a center point. Each gate is in the general shape of a T. Mandalas often have radial balance.

A *yantra* is similar to a mandala, usually smaller and using a more limited colour palette. It may be a two- or three-dimensional geometric composition used in *sadhana*s, puja or meditative rituals, and may incorporate a mantra into its design. It is considered to represent the abode of the deity. Each *yantra* is unique and calls the deity into the presence of the practitioner through the elaborate symbolic geometric designs. According to one scholar, "Yantras function as revelatory symbols of cosmic truths and as instructional charts of the spiritual aspect of human experience"

Many situate *yantras* as central focus points for Hindu tantric practice. *Yantras* are not representations, but are lived, experiential, nondual realities. As Khanna describes:

Despite its cosmic meanings a *yantra* is a reality lived. Because of the relationship that exists in the Tantras between the outer world (the macrocosm) and man's inner world (the microcosm), every symbol in a *yantra* is ambivalently resonant in inner–outer synthesis, and is associated with the subtle body and aspects of human consciousness.^[6]

The term 'mandala' appears in the Rigveda as the name of the sections of the work, and Vedic rituals use mandalas such as the Navagraha mandala to this day.



The science behind these constructions is that, the temple architecture gives cosmic force to the main idol in the Garbha Griha. Firstly, the Juathaskambam acts like an antenna and receives the cosmic force from the space and through a subversive channel it is linked to the main idol in the Garbha-graha. The cosmic force continuously flows through the Jathuskambam to the statue and energizes it. Secondly, the celestial power fetched through the field gives the idol effulgence and metaphysical powers. The cosmic-force is additionally maintained by noise waves (Vedic chants – Read about the Significance of Chanting) and the pyramid like tomb. The pyramid like construction helps to intensify and protect the cosmic force. These are the reasons for anybody to feel a positive energy, goodness, serenity or divinity when we approach the interior sanctum. The copper plate has the propensity to suck part the Ether when that penetrates from the copper and the Herbal resulting in powerful atomic force that penetrates through the skin to heal the human, and that's why the copper plate is put on the temple tower.

he idol is washed with various materials (milk, sandal paste, oil) to preserve the idols. The idol is adorned with flowers and ornaments for mental and visual boost. But the diverse postures of the idol (sitting/standing, number of hands, weapons they hold) do have meaning in emitting the cosmic force.

Thus the temples serve up as the scientific room to receive the shower of cosmic force or God's blessing.

From my understanding Temple Gopurams are an important part of any Hindu temples and there are specific reasons for their existence. They are:

- 1) Temple Gopurams are built to receive the positive energy from the universe. Cosmic rays will be received by the Gopuram and it will be passed to the statue in the temple.
- 2) Gopuram will also receive the energy from thunder/lightning and pass it to the ground. So it acted as a layer of protection for the temple and the nearby areas.
- 3) Temple Gopuram were built largely to depict the culture and art of ancient people
- 4) It also used to act as a landmark in olden days to find out the cities, way to different places.
- 5) In olden days , kings built temples in order to give job to the people of the country and along with that future generations will come to know the architectural talents that ancient people had.
- 6) The small carvings and statues in temple gopuram depict the story of the god and also will show life lessons.

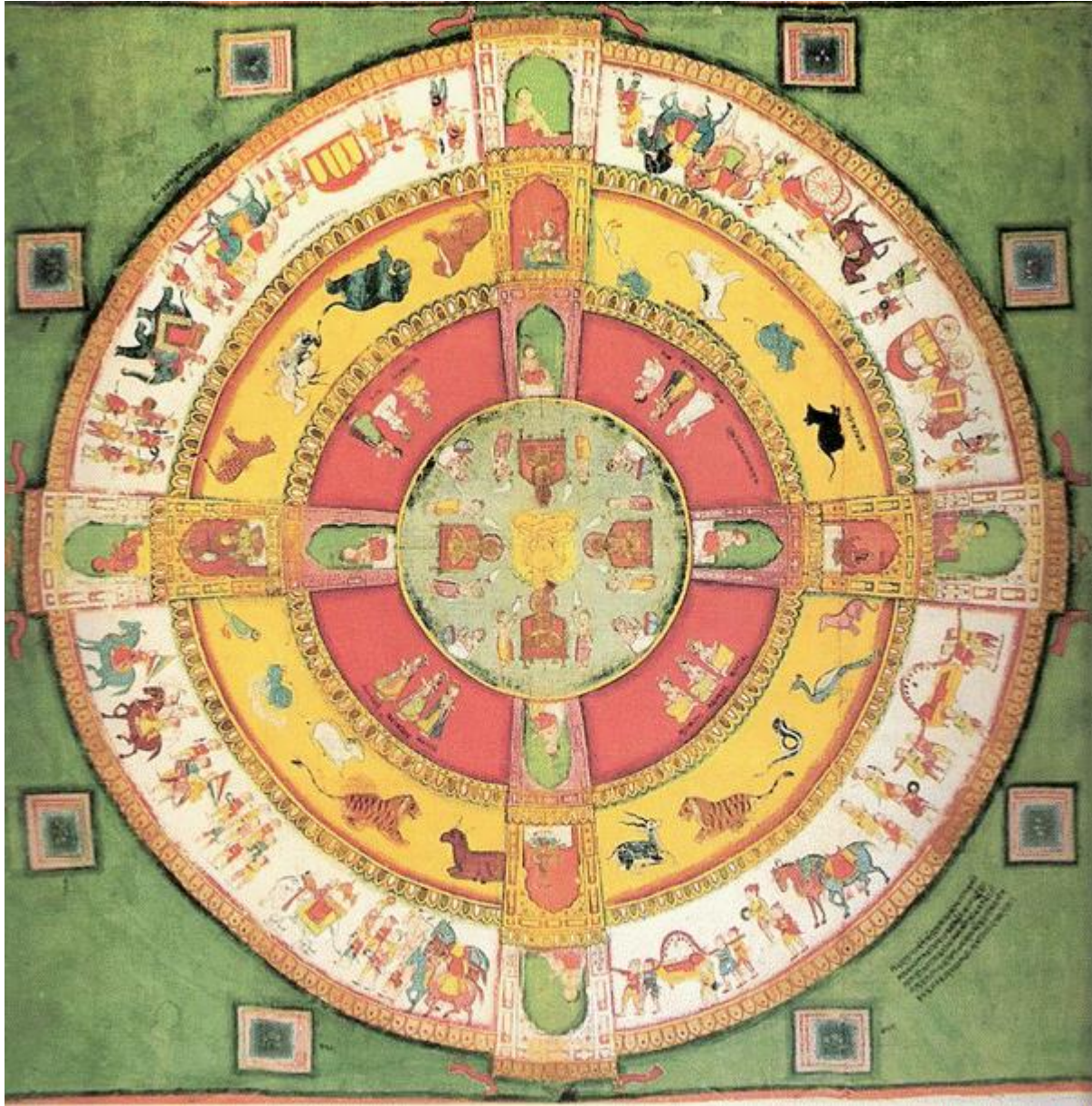
MANDALA AND HINDU & JAIN TEMPLE ARCHITECTURE

Although there have been various arguments by authors of Indian temple architecture like Stella Kramrisch and Michael W. Meister about the applicability of the Vastu Purusha Mandala as a governing device for temple architecture, it is safe to say that for formulating the layout of the temple, the Vastu Purusha Mandala has been an imperative tool. Though the 8 x 8 grid or the Manduka Vastu Mandala has been used in various temples of Indian architecture, it is to be noted that regional differences have played a major influence on the workability of the mandala design throughout India. Customarily, mandalas were spaces for the symbolic consciousness of universal theories which help in the awakening of the individual psyche. The mandalas can be thought of as diagrams that function as a cue to reach a contemplational state which is the primary aim of the tradition. The form of the temples that are based on the regulating lines of the mandala were meant to create spaces that bring about a "physical and spatial" communion between God and man.¹

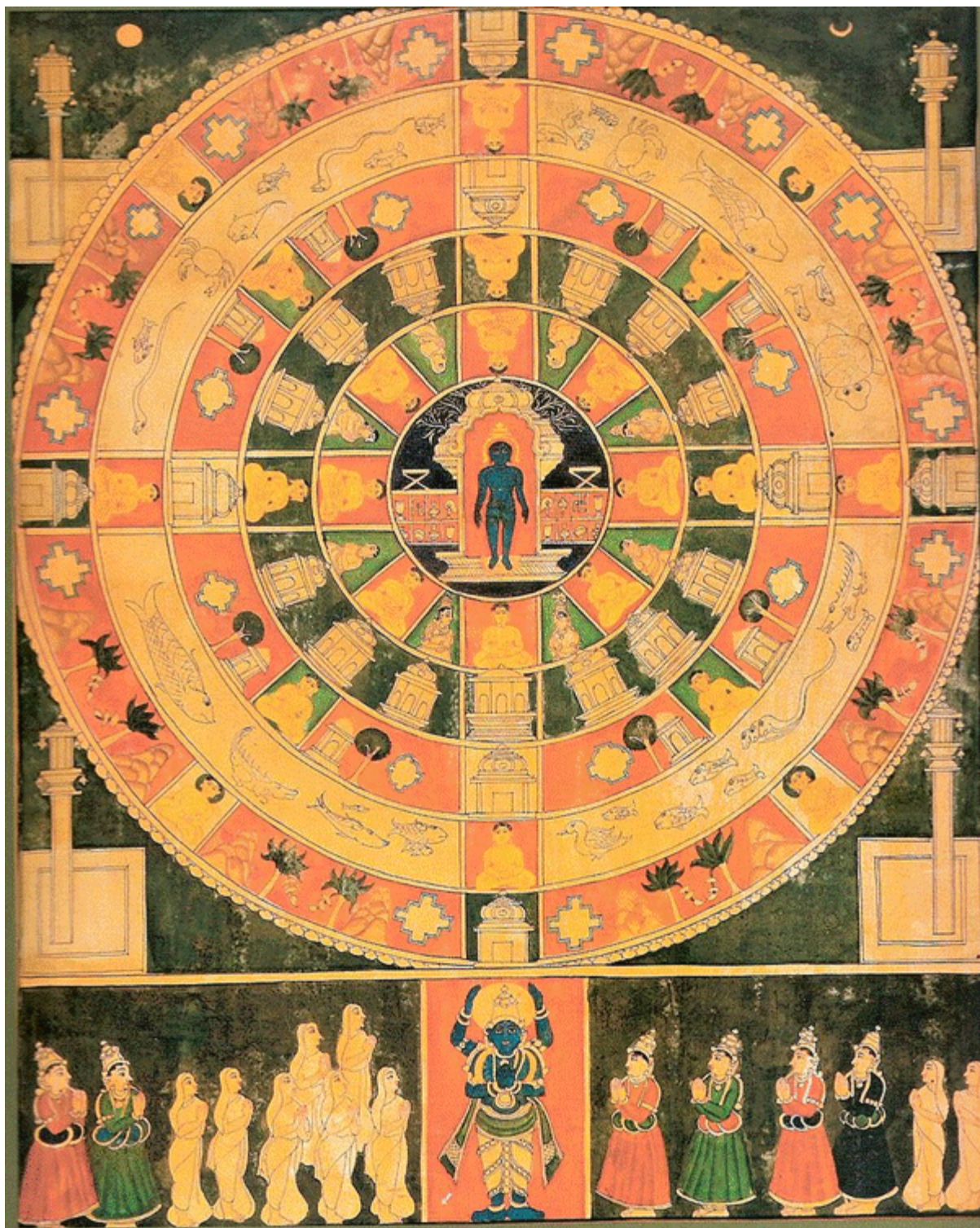
The Vastu Purusha Mandala contains a minimum of nine sections signifying the directions north, south, east, west, northeast, northwest, southeast, southwest and the centre represented as square grids. In the Vastu Purusha Mandala, the Purusha's head is located in the northeast direction and this is considered utmost sacred. In the southwest are his feet and his knees and elbows in the northwest and southeast. Kept open and clear in the centre part of the diagram are his main organs and his torso. Starting from a single undivided square of 1 x 1 there are grid patterns ranging up to 32 x 32 thus making it 1024 sections. Architecturally, the adaptation of the Vastu Purusha Mandala has been seen in the design of houses, palaces, temples and even cities. Integrating it into the design brings a certain amount of order in the design. Here, the squares are assumed as cubes of architectural spaces.

The five elements of earth, water, fire, air and space correspond with specific sections of the Vastu Purusha Mandala. The south-west direction is associated with the element of earth(Bhumi); south-east with the elements of fire (Agni); north-east with the element of water

Jainsim is another important religion from the east where mandalas are used. As per Jainism, every soul is potentially divine and *jinas* are beings who have attained enlightenment. There were 24 *jinas* who were the *tirthankaras*, the first being Adinatha and the 24th being Lord Mahavira who lived in the 6th century; who is frequently depicted in the Jaina mandalas.



Painting of *Samavasarana* or assembly of a *tirthankara*, 1800 A.D. Rajasthan. By Unknown – Painting, Public Domain, <https://commons.wikimedia.org/w/index.php?curid=18780461>



Samavasarana of Lord Mahavira, 19th century, Mysore.■

Mandalas depict a beautiful amalgamation of religion and art. In recent times also mandalas are constantly being created by children and adults alike. They are being used for meditation and as a form of art therapy. **Rangoli** designs made at the entrance and courtyards during festivals in homes across India, also resemble mandalas.

Ranakpur Jain Temple Mandalas



Ranakpur Jain Temple – photo by Sudhagee

The Ranakpur Jain Temple houses this collection of stone-carved mandalas every surface, except the floor, is carved and it is an explosion of art all around you. About this particular photo, she states: Above photo Clockwise from top left: A many-hooded snake protecting Adinath and his family from a deluge; Krishna on Kaalia the snake?; a head with 5 bodies, representing the 5 basic elements; this sculpture is supposed to contain 108 Oms !



Ranakpur Jain Temple – Krishna on Kaalia



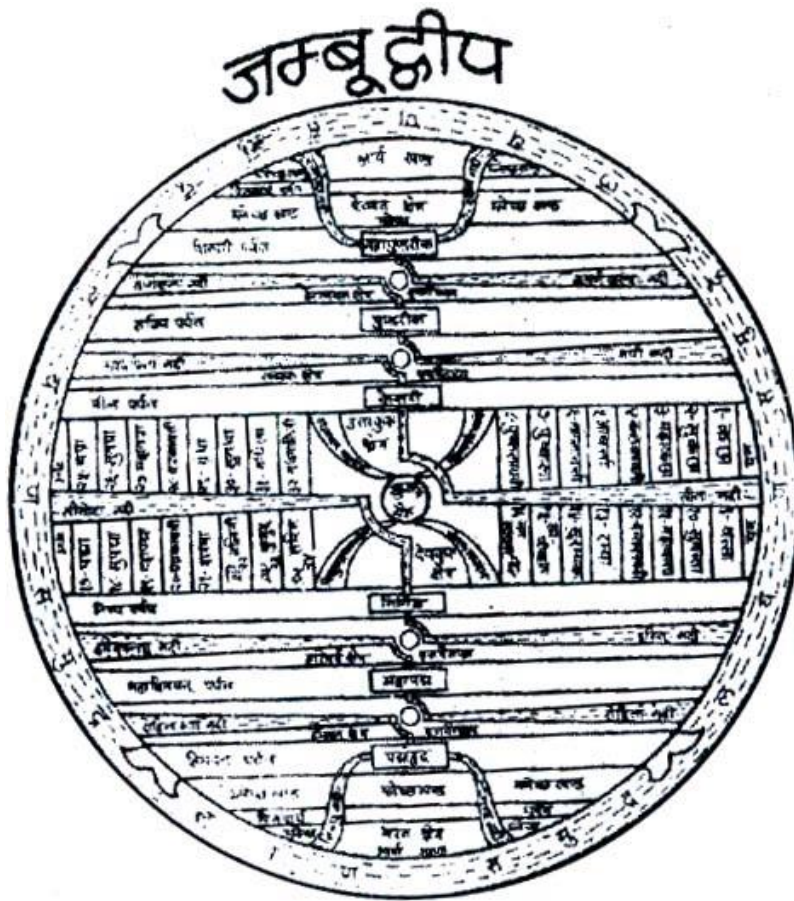
Ranakpur Jain Temple – hooded snake



From Sreenivasan Ramakrishnan's flickr page, Krishna on Kaalia and the 108 Ohms carving.



Ranakpur Jain Temple – Many Ohms



The first island of Middle Universe (Madhya Lok) is one lack Yojan (40 crore miles) in circumference and looks like a round plate, which is known as Jamboodweep. It is surrounded by innumerable islands and seas.

Where are we in this Jamboodweep? We are just in the Southern corner of this island. Listen! this island is divided in seven regions known as Bharat, Haimvat, Hari, Videh, Ramyak, Hairanyavat and Airavat.

These regions are partitioned by six mountains known as Himvan, Mahahimvan, Nishadh, Neel, Rukmi and Shikhari.

Bharat Kshetra is equal to one hundred & ninetieth part of Jamboodweep i.e. 526 Yojan. It is again divided in six parts, one part is called Aryakhand; Bharat Varsh (i.e. our country INDIA) is situated in the centre of Aryakhand; we & you all the people live in it. Today's whole world is situated in Aryakhand.

The symbolic structure of Jamboodweep has been built at Hastinapur (Meerut-U.P.) in 1985. Sumeru Mountain of 101 Ft. height is situated at its centre. Tourists and devotees from all over the country and abroad come to visit this heavenly structure and understand the essence of Jain-Geography. U.P. Tourism has defined this Jamboodweep as the index of Hastinapur along with calling it as 'Man Made Heaven' with 'Unparallel Superlatives'.

Jambudweep is a Digambara Jain temple in Hastinapur, Uttar Pradesh built under the blessings of *Gyanmati Mataji* in 1972. Official name of the tirtha is the *Digambar Jain Institute of Cosmographic Research (Digambar Jain Trilok Shodh Sansthan)* and its main attraction is the building constructed as a model of Jambudvipa. Jambudweep was founded by Gyanmati Mataji in 1972 and the model of Jambudvipa was completed in 1985. For the tirtha, Nalini Balbir reported

The main attraction of this vast campus is the Jambudvipa. By its height, this original construction dominates all other buildings. It is meant both for education of the believers, since it shows them the Jaina representation of the universe, and for their entertainment. One can climb to the top by an inner staircase, or go boating around the Lavanasa-mudra.

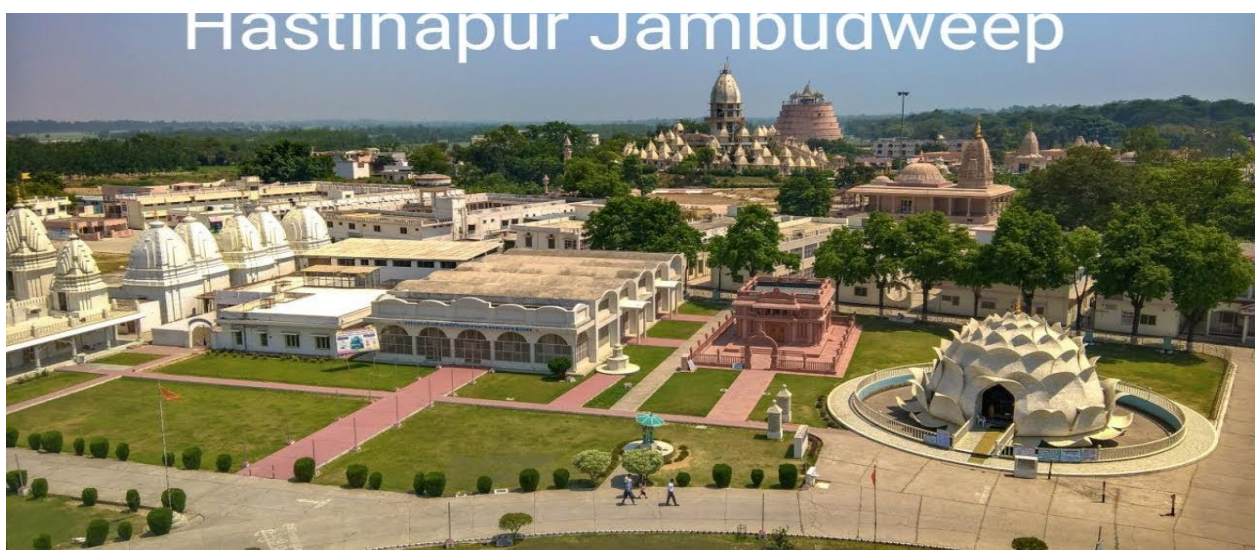
— *Nalini Balbir*

Jambudweep depicts the model Jain cosmology has been designed here under the supervision of Shri Gyanmati Mataji was in 1985. The premises has various Jain temples which includes Sumeru Parvat, Lotus Temple, Teen Murti Mandir, Meditation Temple, Badi Murti, Teen Lok Rachna and many other tourist attractions.

Unique circular structures of Jain Geography 'Jambudweep' has been constructed with white & coloured marble stones in the diameter of 250 ft. with 101 ft. tall Mount Sumeru Parvat is built by light pink marble situated in the center of Jambudweep Rachna.

The structure of Jambudweep, depicting Jain Geography, is the model of our grand universe. Centrally located Sumeru Mountain is considered as the central point of it. Due to the location of Sumeru, Jambudweep structure has four distinct regions in East, West, North and South. The East region is known as East Videh Kshetra and the West region as West Videh Kshetra. In the

South direction, with the prominence of Bharat Kshetra, Himvan etc. mountains, Ganga-Sindhu etc. rivers, Haimvat etc. Kshetras, Bhogbhumis (lands of enjoyment) with Kalpa-Vrikshas (wish fulfilling trees), Chaityalayas (Temples), palaces of deities, ponds, gardens etc. have been shown while same structures have been built with different names in the North direction, having the prominence of Airavat Kshetra. Just near the Sumeru Mountain, Jambu Vriksha (tree) in the North and Shalmali Vriksha in the South have been shown. Both of these metal trees have one temple each. If one first reads the description of these structures in scriptures like Tiloypannatti, Triloksar, Tatvartha Sutra etc. and then observes all the details at Jambudweep, he can gain real knowledge about it. According to our scriptures, the present world (all the six continents) is situated at the South of the Bharat Kshetra and the rest of the grand Universe is unavailable to us.





PUJA

Types of Jain Puja

..There are two types of Jinpuja: Saguna & Nirguna. The worship of Jina in the form or Image is called SagunaJinpuja. The worship of Jina as formless (spiritual idea of Jina) is called NirgunaJinpuja. The Sagunaworship of the Parmatma (idol) is of eight-fold (Ashtaparakari). We require the medium of an Idol or image for worship till we reach the 7th Gunasthan (Seventh Stage in the spiritual development). Nirgunaworship consists of devotion and meditation of the Formless one. Once the aspirant is spiritually advanced to a significantly higher spiritual level (the stage of the 8th Gunasthan and beyond), where Saguna worship is abandoned. A beginner requires the medium of Idol. While carrying on the Dravyapuja (Pujathat includes physical offerings such as Water, Rice etc is known as Dravyapuja) we should do the Bhavpuja (mental / emotional act of Puja without any physical offerings).

These are various types of Pujas: some of the common Pujas are (1) Eight-fold Jinpuja (Ashtaparakari or AsthadravyaPuja), (2) Athar (18) AbhishekPuja, (3) PanchParmeshtiPuja (4) SnatraPuja. There are five types of twenty types of pujas.

How to be engrossed in Jinpuja?

To be engrossed completely in Jinpuja, the aspirant have Tadgatchitt (full concentration), SamayVidhay (administration – astonishment), Pulak (delight) and Pramod-pradhan (appreciation of great qualities of the Tirthankar).

By performing Jinpuja on a regular basis with pure feelings (bhav – mental / psychic aspect), it can remove eight types of karma: knowledge-obscuring karma, perception / awareness obscuring, belief and conduct diluting karma, energy obscuring karma, life-span determining karma, body-determining karma, status determining, and pain-pleasure producing karma. Thus, liberate ourselves from the bondage of karma forever.

Physical purity: The aspirant should take a bath using the necessary amount of water to clean his/her body. For DigambarPuja: After wearing Puja clothes, take Kesar(saffron paste) on your right ring finger and place it on various parts of the body to symbolize that you are clean and ready to start the Puja. In this order, you anoint the forehead, left and right earlobe, the neck. And near the belly button. Clean your fingers after this and do not use the same Kesar for Puja.

Purity of clothes: We should have a special set of clothes worn for puja. The clothing should never have been worn while using the rest and never have been worn while eating or drinking.

Traditionally, garments should be generally white and unstitched. Men are recommended to wear

dhوتي and khesh. In contemporary times, women can wear almost anything as long as the clothes are new. For Digambar puja: the clothes must be handwashed clean. One must not have eaten or gone to the bathroom in those clothes.

Purity of mind : While worshipping avoid stray thoughts. We should utter relevant verses and meditate on the virtues of the Bhagwan

Purity of Ground : We should sweep the floor of the temple, clean and arrange the articles of worship.

Purity of Upakaran (items used in worship): We should buy good and clean items for worship.

Purity of money : Money to be used in religious purposes must be earned honestly. Ill-gotten wealth should not be used.

Purity of Ceremony : We should stop thinking of worldly affairs as soon as we are on our way to the temple. We should not carry out any worldly business in the temple area and should perform the puja ceremony systematically.

Tilak (Agnachakra)

We put a Tilak (vertical flame like) on the forehead. This means that we are obeying the commands of Tirthankar (His teachings) for liberation of our soul. Round Tilak is not recommended. After putting Tilak, the aspirant with folded hands should say “ Namojinanam” as if the Parmatma is in the front of him / her.

How to stand in front of the Parmatma?

While worshipping or doing darshan of the Parmatma, men should stand on the right side and women should stand on the left side of the Parmatma. This is done to observe the courtesy, and to allow others to see (darshan) the Parmatma.

Ten Triks (group of three) to be observed while worshipping

Nisihitrik: We should utter words ‘Nisihi’ (to give up) thrice first time while entering the main door of the temple. It means that I will restrain myself from engaging in worldly activities, physically, verbally and mentally. The second time ‘Nisihi’ is uttered before entering the inner temple (Gabhara). This signifies that I am abandoning the activities relating to the temple matter. The third time ‘Nisihi’ is uttered after completion of Ashtaprakari Puja. This signifies that I will restrain myself from physical acts of worships (Dravya Puja) before performing ‘Chaitya Vandan’ (Bhav Puja).

Pradakshina Trika: After doing Tilak, we should process to perform three

Pradakshina (circumambulation) around the Parmatma (in Bhomati, also called Gomati), starting from the right going to the left to HIM. It is symbolic for acquiring virtues of right perception, right knowledge and right conduct.

While performing Pradakshina, we should recite hymns of an auspicious prayer like some hymns from the Ratnakar Pachisi or from Bhaktamar Stotra with full devotion. While performing Pradakshina, we should do “ Namaskar” with folded hands whenever we see the Parmatma.

Pranam Trika) On seeing the Parmatma, we should utter “Namojinanam” with our both hands folded together. B) We should bow down bending the upper part of our body half way before the Parmatma and do the Pranam with folded hands. c) Bow down by bringing the five limbs of the body together (two arms, two knees and the heads) on the floor.

Puja Trika a) Ang Puja – We worship the Parmatma by touching it. It consists of Jal-Puja, Chandan-Puja and Pushpa-puja. b) Agra Puja – We worship the Parmatma by standing in front of Him by waving incense, lamp (Dipak) and swaying the Chamar. Then we worship the Parmatma by making a rice-swastika and placing sweets and fruits on it before the Parmatma. c) Bhav Puja – Chaitya Vandan, Stavan and Stuti constitute the Bhav Puja.

AvasthaTrik: a) Birth Stage: While doing Abhishek, (the ceremony of bathing), we should think that Indra and heavenly beings are performing the Abhishek on the mount Meru upon the head of the newly born baby who is going to be Tirthankar , b) Kingship stage – After worshipping the Parmatma with sandal paste, flowers and ornaments, we should contemplate the kingship of Tirthankar imagining Him seated on a throne. C) Shraman(Ascetic) stage – We look at the hairless head of Tirthankar and contemplate His Ascetic stage of life, wishing for ourself the same state in this life.

DishaTrik: We should watch the Parmatma without looking a) upwards, downwards or sideways; b) right or left or c) behind.

BhumiPujaTrik: Before doing ChaityaVandan, we should sweep the ground with the help of our scarf or handkerchief in order to gently move insects and minute living beings from the area.

AlambanTrik: a) Varna-alamban – We should recite the sutras, stavanas and stutis correctly without skipping any letter or a word. b) Arthav-alamban – We should think of the meaning of the words by us. C) Pratimav-alamban – We should say prayers facing the Parmatma.

MudraTrik – a) Yoga Mudra – Fold the ten fingers into form of a lotus, keep the elbow on the belly and recite the ChaityaVandan up to Namuthunam. B) Jin Mudra – Do Kausagga Arihant-cheiyaname up to AnattaSutra. c) MukataSuktiMudra – Fold your two palms hollow like a pearl-shell and then touch your forehead and recite JavantiCheial, Javant – Kevisahu and Jay viyavya.

PranidhanTrik – ChaityaVandan is performed with full physical, verbal and mental concentration
Darpan

We look into a mirror (Darpan) to see the face of the Parmatma as the VitaragBhagwan(who has conquered attachments and aversions) symbolizing that we may attain the state of non-attachment like HIM. This is done after performing Jin Puja.

Chowri Dance

After performing DarpanPuja, we Chowridance while swaying the Chamar before the Parmatma to express our love, respect and devotion to our VeetrageBhagwan. This is usually done after looking at the face of the Parmatma into Darpan.

Performance of Rice Swastik & its Significance

The swastik sign symbolizes the samsarik cycle that is consisted of four destinies: 1. Heavenly beings, 2. humans, 3. hell beings and rest of the living forms (animals, plants, etc). A given soul can be born unaccountable number of times in each type. After JinDarshan or Jinpuja, the aspirant sits on a mat in front of the Parmatma. He / She forms a sign of swastika using rice grains on a plate or a wooden plank, This symbolizes the four samsarikdestinies. Then he/she places three dots above the swastiksign. Three dots symbolize the three jewels – perfect perception, perfect knowledge and perfect conduct. These three provide the means for escaping the miserable samsarik cycle. Finally, he/she makes a half cycle on the top of three dots and puts a dot in that half circle. This half circle figure with a dot symbolizes the place, siddhha-lok (upper portion of the universe) where the liberated souls are. The aspirant to be liberated from the samsarik cycle of four destinies by the means of right perception, right knowledge and right conduct and attain Moksha. The aspirant puts Sweet on the swastika symbolizing he/she wants to attain a foodless state (Anahari – Siddha). In addition, the aspirant puts fruit on the siddhashila symbolizing the fruit of the Jinpuja is the fifth state of liberation that is liberation.

BhavPuja

There are three types of BhavPujas. In general, ChaityaVandan is performed after the AshtaprakariPuja.

Why should we ring the bell and when?

After completion of the darshan / puja and before leaving the temple, you must ring the bell in order to express the spiritual happiness that you have just experienced while performing puja and having HIS darshan.

How to come out of the temple?

After ringing the bell, you must leave the temple without turning your back towards the Parmatma (Idol). You must retreat walking backwards.

After coming out of the temple, sit for a few minutes outside the temple visualizing the Parmatma with eyes softly closed, steady body and full mental concentration.

Brief Description of Various Pujas

Athar (Eighteen) Abhishek Puja

The direct translation of Abhishek is “coronation”. Abhishek signifies the cleansing of the mind and body as a way to begin puja. The process involves using of eighteen different substances while reciting the auspicious aphorisms and Mantra, This Abhishek Puja is performed for the purification of altar, Pratimajis and participants.

Pratishtha (Cementing) Vidhi

This spiritual process involves cementing of Pratimajis on its platform (Gadi). There will be the same number of the metal sticks under the Gadi as the participating families. Each participating family will remove one strip and cement that particular place from where the metal strip is removed. Then remove back to allow other participants to do the same. Before and during this process, the auspicious Mantras are recited.

Ashtaprakari (Eight Fold) Jinpuja of Swetambar Pratimajis

This particular Jinpuja is usually performed in the morning . Eight different rituals are performed during puja: jal (water), Chandan (sandalwood paste), Pushpa (flowers), dhoop (incense), dipak (light), akshat (rice), naivedya (sweets), and fal (fruits).

Jala Puja: (Water): Before performing this, everything (like flowers), from the Parmatma should be removed. Then insects (if any) on the Parmatma be removed gently by using a peacock feather-brush. After his, we should sprinkle water (abhishek) on the Parmatma. Then remove stale sandal paste by wet cloth (Potu), apply the Valakunchi (brush of hair-like Chandan sticks) gently on the places where dry paste is stuck.

Water symbolizes life’s ocean of birth, death and misery. This Jinouja reminds that one should live his life with honesty, truthfulness, love and compassion towards all living beings. This way one will be able to cross life’s ocean and attain liberation (Moksha).

Chandan Puja: (Sandal-wood): Wipe the Parmatma by three pieces of cloth to remove all water, and make the Parmatma completely dry. This Puja involves puja of nine limbs: (1) two toes of the feet, (2) two knees, (3) two wrists, (4) the shoulders, (5) the head, (6) the forehead, (7) the throat, (8) the chest and (9) the naval

Chandan symbolizes knowledge (jinana). By doing this Jinpuja, one should thrive for right knowledge.

Pushpa Puja: (Flower): The flower symbolizes conduct. Our conduct should be full of love and compassion towards all living beings, like flower provides fragrance and beauty, without any discrimination.

Dhup Puja: (Incense): Dhup symbolizes monkhood life. While burning itself, incense provides fragrance to others. Similarly, true monks and nuns spend their life selflessly to benefit all living beings. This Jinpuja reminds that one should thrive for an ascetic life.

DipakPuja: (Candle): The flame of Dipak represents a pure consciousness. i.e. a soul without bondage of any karmas or a liberated soul. By doing this Jinpuja one should thrive to follow five great vows; non-violence, truthfulness, non-stealing, chastity, and non-possession. Ultimately these vows will lead to liberation.

AkshatPuja: (Rice): Rice is a kind of grain which is non-fertile. One cannot grow rice plants be seeding rice. Symbolically, it represents the LAST BIRTH. By doing this Jinpuja one should thrive to put all efforts in life in such a way that life becomes the last life, and there will be no more birth this life. Literally, Akshat means unbroken, and it stands for there will be no more birth after this life. Literally, Akshat means unbroken, and it stands for unbroken happiness. The bright white color of rice represents the purity of our soul.

NaivedyaPuja: (Sweets): Naivedya symbolizes tasty food. By doing this Jinpuja, one should thrive to reduce or eliminate attachment to tasty food. Healthy food is essential for survival; however one should not live for tasty food. Ultimate aim in one's life is to attain Moksha where no food is essential for survival.

FalPuja: (Fruit): Fruit is a symbol of Moksha or liberation. If we live our life without any attachment to worldly affairs, continue to perform our duty without any expectation and reward, be a witness to all the incidents that occur surroundings us, truly follow monkhood life, and have a love and compassion to all living beings, we will attain the fruit of liberation. This is the last Jinpuja symbolizing the ultimate achievement of our life.

Ashtaprakari (Eight Fold) Jinpuja of DigambarPratimajis

Abhishekh: Abhishekhis performed by the Pujari (male); the rest of the members participate in reading the Jinpuja. Altar area is cleaned. Abhishek involves cleaning of the altar by sprinkling saffron water on the eight directions and cleaning of the Parmatma, then wiping the Parmatma dry using dry cloth. Several kalashes (pots) of pure water is used in bathing the Parmatma as the bell is rang and the Abhishekh path is read or NamokarMaha Mantra is recited. The rest of the participants are reading or chanting the Abhishekh Path. Usually, there should be a continuous stream of water until the AbhishekhPath is complete. Then the Parmatma s first wiped by wet cloth and then with a dry cloth.

Sthapana: Take three full cloves and hold one clove at a time between the two ring fingers. While keeping the clove head pointing forward and while chanting the sthapanam, place the cloves in an elevated place. The first clove represents that May Dev-Shostra-Guru come into my thoughts; second clove represents that May Dev-Shostra-Guru stay in my thoughts, and third clove represents that May Dev-Shostra-Guru be near me.

Invocation: The rays of the sun of omniscience illuminate whose inner self, that voice of Jinendra expounds beautifully the fundamentals of our being. The monks who process on the path of right faith, knowledge, and conduct, I bow to thee, oh God. Scriptures and monks of the Jain order, a hundred times. I implore of the trio to settle in my mind, while I am offering this homage.

Brief Description of AshtPrakariPuja:

Water: Pleasured of the senses are sweet poison, nevertheless one is attracted towards this handsome human frame, I have failed to comprehend that all this is the manifestation of matter alone, Forgetting my own glories, I have adhered to attachments of the non-self, Now I have come to you to wash off wrong faith with the pure water of right faith. I offer to you this water for destroying wrong faith as it has not been able to quench my eternal thirst.

Sandalwood: All the sentiment and non-sentiment entities behave and act on their own limits of existence, calling them favorable or unfavorable is a false attitude of the mind. I have only

lengthened the circle of life and death by becoming unhappy with unfavorable associations, I have come to you with a grieved heart to get peace of mind, as from sandalwood. I offer to you this sandalwood to destroy the anger in me as this has not been able to keep me calm and undisturbed.

Flower: This flower is very soft; it has not crookedness or deceitfulness; I accept that there is no straight forwardness in my own self, my thinking, expression and action – all are different from each other, I therefore, implore you to grant me stability that washes off inner impurities. I offer to you this flower to achieve supreme straightforwardness in my nature.

Incense: I have entertained the false belief that inanimate karmas are the cause of my wanderings in the four phases of life. As such I indulge in attachment and aversion, when these karmas behave in themselves, Thus, I have been passing through material as well as psychic karmas for centuries, I have come to thee, oh trio, to burn external incense for achieving the sweet spiritual incense of my own-self. I offer to you this incense to destroy the antagonistic inclinations of my existence.

Lamp: I was under the impression that my life will be illuminated with this inanimate lamp, which changes into deep darkness just in a heavy tempest of wind. I have, therefore, come to place this mortal light at your feet, And to light my own inner-lamp with your supreme light of omniscience. I offer to you this lamp in order to destroy the darkness of my inner self.

Rice: I am pure and without any blemish, having no connection with the non-self, Even then I always take pride in favorable associations of this world, This is a homage of the sentiment to the non-sentiment elements, destroying our modesty, I have come to you, oh supreme trio, for the realization of my supreme bliss. I offer to you this unbroken rice to achieve the non-destructible treasure of joy.

Sweets: My hunger has remained insatiate even after consuming countless inanimate articles, the pit of greediness has been filled time and again, but it remained empty, I have been moving in the sea of desires and sinking therein from time immemorial. Renouncing all pleasures of sense and mind, I have come to thee for drinking deep of the intrinsic nectar of the soul; I offer to you these sweets in order to win victory over my passion of greed.

Fruit: Whatever material entities I call my own, leave me all of a sudden, I, thus, become perturbed and this mental disorderliness leads to others of the same kind. I want to see my delusions dashed to pieces and that is the purpose of my prayer to thee. I offer to you this fruit to obtain the fruit of supreme bliss.

Arati

There are many meanings of Arati. One meaning is to experience the spiritual joy from all directions (Arati = A + Rati, A means from all sides and Rati means Joy – spiritual joy). When a religious activity is concluded with success, we do Arati to express our spiritual joy. rati also means to seek the end of “Art” (misery). This material world (Samsar) is full of misery, and the aspirant is performing Arati to free himself / herself from the cycle of the misery of the material world, cycle of birth and death, Third is that to fill our inner selves with spiritual joy, and to end the mental unhappiness.

To free from the miserable cycle of the material world (Samsar), one needs to have bright light of five types of knowledge. That’s why we light five Dipaks (which has candle like flame).

These five Dipaks are also symbol of five great vows (PanchMahaVrat) through its practice, one attains the salvation. Five Dipaks are also symbolic of practicing five Samitis (Restraints), It is also representative of restraining negative of five senses and five characteristics of SamyakDarshan (Right Perception).

Another way to understand the purpose of performing Arati is that, to free ourselves from the miserable cycle of material world, we need to detach ourselves from all worldly attachments as five supreme beings (PanchParmeshthi) have done it.

To pay our spiritual tribute to these five PanchParmeshthi, we light up five Dipaks, and we mentally contemplate that “I want to also give up all worldly attachments, and want to initiate myself (take Diksha) to become a Sadhu (or Sadhvi) to free myself from four Samsari and to attain the fifth destiny, Moksha.

MaganlDivo

Mangal means to eradicate bad karma (pap), to free ourselves from Samsar (material world), to remove the darkness of ignorance, to have an auspicious opportunity to practice Right Religion and to practice the path that is beneficial to the Self (soul). Only path of Moksha is beneficial to our Self that is attained by eradicating all karma. By removing the darkness of karma, one enlightens himself / herself with the Absolute Knowledge (KevalJnana). One Dipak is used in MagalDivo to symbolize the one and only Perfect knowledge, KevalJnana through which the darkness of the ignorance is permanently removed, the miserable cycle of birth and death is permanently ended, the association with the foreign dust of karma is completely terminated, and the true qualities of the souls are forever realized. In other words, one Dipak in MangalDivo symbolizes the one and only path of Moksha as expounded by Tirthankars. We should mentally contemplate while performing MangalDivo that “I want to enlighten my inner Dipak(self) just like this MangalDivo by attaining the perfect knowledge, KevalJnana by practicing the path of Moksha as expounded by Tirthankars.”

ShantiKalash

This is performed for inner and external peace for everyone and everywhere in the universe. In the beginning NamokarMaha Mantra and Uvasaggaraham are recited and then it is followed by Bruh-Shanti while maintaining a continuous flow of the Panchamrut from Kalash in to a Pot. In this process, the peace in the universe is prayed for by wishing good physical, verbal, mental and spiritual health to all living beings and absence of misery everywhere, this is done in the manner it was done by the heavenly beings and their king (Indra) while performing Janmabhishek of Tirthankar in the Mount Meru.

Aspirant pays his / her respect to all twenty four Tirthankars and prays for suppression of passions (Kashay) everywhere. Inner and external peace is wished to the four folded community (Sangh) and to all living beings, guidance from Jain monks and nuns is sought, Mantra are recited, help from heavenly beings is sought, environment, that is free of diseases, wars , droughts , disturbances and unhappiness, is sought. The spiritual progress, contentment and wellbeing for everyone is wished. It is prayed that every living being becomes free of all kind of fears, fear of water, fire, poison, animals, disease, war, enemy, robber, etc. It wished that each living beings helps each other, everyone eliminates his/her own faults, and everlasting happiness for everyone is wished.

ShantiSnatraPuja

During this puja ShriLaghuShanti, which is consisted of 27 aphorisms, is recited involving unique ritual process, This puja is performed for the wellbeing of entire Sangh, for its spiritual growth, for its inner happiness and peace, to calm down the outside disturbances and for curing uncontrollable diseases, After the conclusion of this Puja, the temple is sprinkled with the holy water (Naman). In addition each member of the Sangh takes this water to his/her residence and sprinkles it around for the inner and external peace.

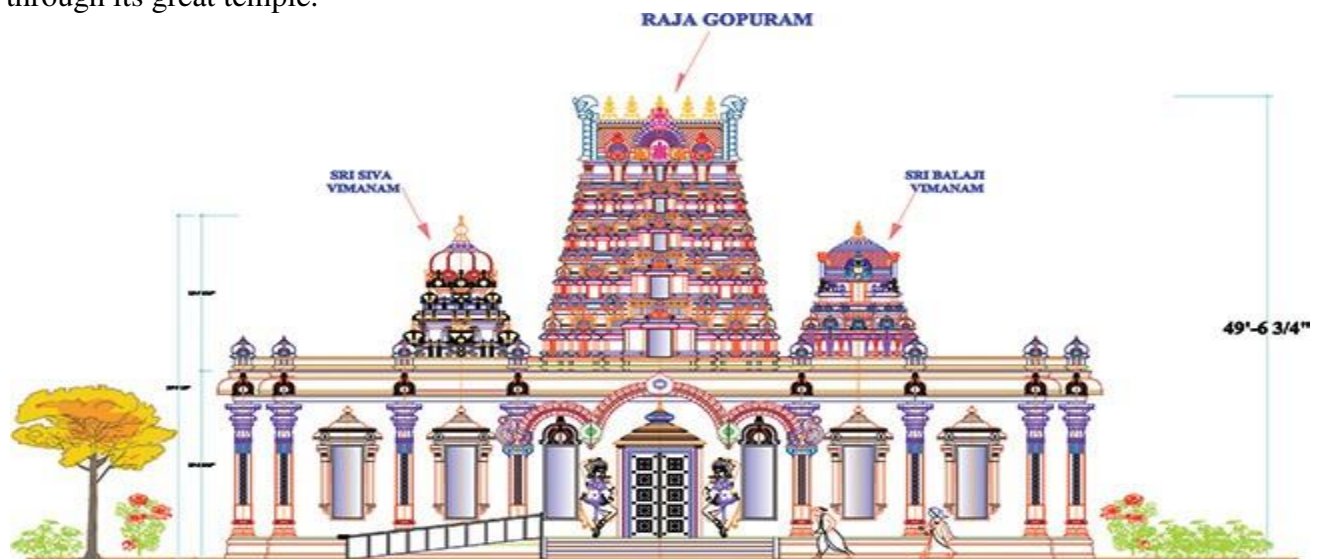
MichhaMiDukkadam

Because of our carelessness and lack of knowledge, we are sure we have made few mistakes and might have hurt your feelings knowingly or unknowingly. Please accept our sincere apology. MichchhaMiDukkadam. Please let us know about our mistakes.

THE PERFECT EXAMPLE OF A HINDU TEMPLE AS A MANDALA ANGKOR WAT

Angkor Wat was built by the king of the Khmer Empire first as a Hindu, then a Buddhist temple complex. It is known as one of the largest monuments ever built. Hence, this great Buddhist temple provides clear, physical evidence that Hinduism and Buddhism were brought to the region by the Indians, and adopted by early Southeast Asian empires like the Khmer Empire.

The pagodas of Angkor Wat are also a physical depiction of the Hindu concept of Mandala. In addition, the gates of the temple also resemble the gates of the symbol of Mandala. This concept is Hindu in nature and is believed to have been brought to pre-modern Southeast Asia from India. It is probable that these ideas were then "borrowed" by the Khmer Empire, and depicted through its great temple.



Angkor Wat also has a Gopura. A Gopura is a monumental tower often built at the entrance of temples - a distinctive feature of South Indian architecture. The presence of this structure at Angkor Wat indicates that there was Indian influence in the architecture of the Khmer Empire.

In addition, the temple has many bas-reliefs depicting stories from the Indian epics, the Mahabharata and Ramayana. This shows that these stories were clearly influential in early Southeast Asia as they repeatedly adorn the walls of Angkor Wat, which was seen as a sacred and important place. This demonstrates just how strong Indian influence was in the Khmer Empire.

Furthermore, even though hundreds of years have passed, Angkor Wat is still a national symbol and major source of pride of Cambodia today. The fact that Indianisation of the Khmer Empire

from the 7th to 14th century has continued to shape the heritage and identity of modern Cambodia indicates the lasting impact Indianisation had on the region.

Mandala in Meenakshi temple Madurai with biggest GOPURAMs in the world **Temple Structure**

The entire structure, when viewed from above, represents a mandala. A mandala is a structure built according to the laws of symmetry and loci. There are various shrines built within the temple complex.

The temple occupies a huge area in the heart of Madurai as it spreads over 14 acres. The temple is enclosed with huge walls, which were built in response to the invasions. Apart from the two main shrines, which are dedicated to Sundareswarar and Meenakshi, the temple has shrines dedicated to various other deities like Ganesha and Murugan. The temple also houses goddesses Lakshmi, Rukmini, and Saraswati.

The temple also has a consecrated pond named 'Porthamarai Kulam.' The term 'Potramarai Kulam' is a literal translation of 'pond with a golden lotus.' The structure of a golden lotus is placed at the center of the pond. It is said that Lord Shiva blessed this pond and declared that no marine life would grow in it. In the Tamil folklore, the pond is believed to be an evaluator for reviewing the worth of any new literature.



Image Credit:

The temple has four main towering gateways (gopurams) that look identical to each other. Apart from the four 'gopurams,' the temple also houses many other 'gopurams' that serve as gateways to a number of shrines. The temple has a total of 14 towering gateways. Each one of them is a multi-storey structure and displays thousands of mythological stories and several other sculptures. The major 'gopurams' of the temple are listed below:

- **Kadaka Gopuram** – This towering gateway leads to the main shrine that houses Goddess Meenakshi. The gateway was rebuilt by Tumpichi Nayakkar during the mid-16th century. The ‘gopuram’ has five storeys.
- **Sundareswarar Shrine Gopuram** – This is the oldest ‘gopuram’ of the temple and was built by Kulasekara Pandya. The ‘gopuram’ serves as a gateway to the Sundareswarar (Lord Shiva) shrine.
- **Chitra Gopuram** – Built by Maravarman Sundara Pandyan II, the gopuram depicts the religious and secular essence of Hinduism.
- **Nadukkattu Gopuram** – Also called as the ‘Idaikattu Gopuram,’ this gateway leads to the Ganesha shrine. The gateway is placed right in between the two main shrines.
- **Mottai Gopuram** – This ‘gopuram’ has fewer stucco images when compared to the other gateways. Interestingly, ‘Mottai gopuram’ had no roof for nearly three centuries.
- **Nayaka Gopuram** – This ‘gopuram’ was built by Visvappa Nayakkar around 1530. The ‘gopuram’ is astonishingly similar to another gateway called ‘Palahai Gopuram.’

The temple also has numerous pillared halls called ‘Mandapams.’ These halls were built by various kings and emperors and they serve as resting places for pilgrims and devotees. Some of the most important ‘mandapams’ are given below:

- **Ayirakkal Mandapam** – It literally translates to ‘hall with thousand pillars.’ The hall, which was built by Ariyanatha Mudaliar, is a true spectacle as it is supported by 985 pillars. Each and every pillar is sculpted magnificently and has images of Yali, a mythological creature.
- **Kilikoondy Mandapam** – This ‘mandapam’ was originally built to house hundreds of parrots. The parrots that were kept there in cages were trained to say ‘Meenakshi’. The hall, which is next to the Meenakshi shrine, has sculptures of characters from Mahabharata.
- **Ashta Shakthi Mandapam** – This hall houses the sculptures of eight goddesses. Built by two queens, the hall is placed in between the main ‘gopuram’ and the gateway that leads to the Meenakshi shrine.
- **Nayaka Mandapam** – ‘Nayaka Mandapam’ was built by Chinnappa Nayakkar. The hall is supported by 100 pillars and houses a Nataraja statue.



Title: Mahāvīra and 23 Jinas. The British Library Board. Possibly Jaipur, Rajasthan. coloured metal plaque. Size: 13 cms diameter

This is a maṇḍala representing the 24 Jinas. The Jinas here are typical Śvetāmbara images, with jewellery and open eyes.

They are placed in three concentric circles, and can be identified by moving from the inside outwards.

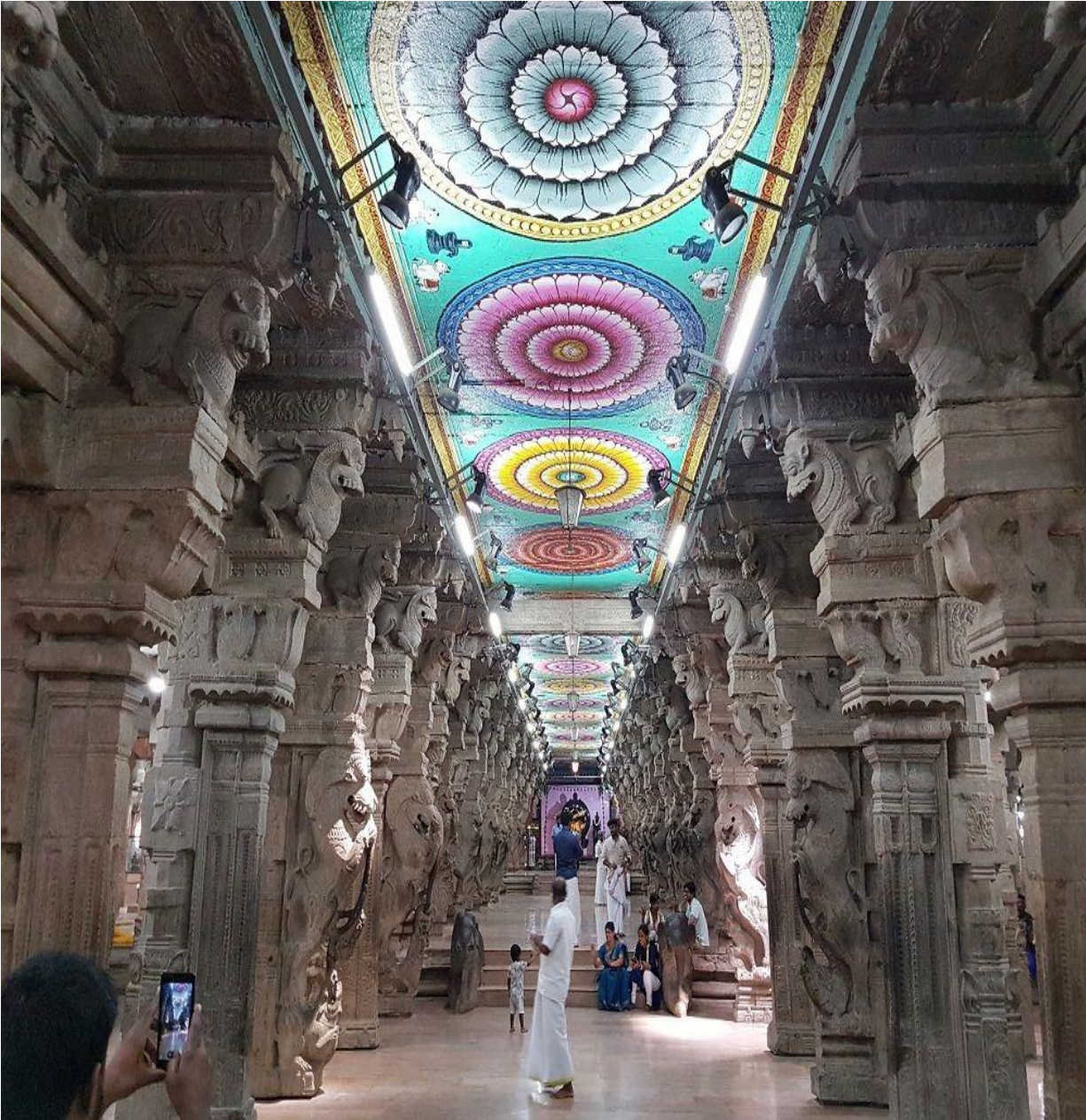
Circle	Jina details
Central circle	<p>Mahāvīra is in the centre, sitting in meditation and the largest figure</p> <p>Jinas number 13 to 23 are in the next circle, with Vimala at the top. Then, facing each other in pairs are, first left then right:</p> <ul style="list-style-type: none">▪ Ananta and Dharma▪ Śānti and Kunthu▪ Ara and Malli
Second circle	<ul style="list-style-type: none">▪ Munisuvrata and Nami▪ Nemi and Pārśva. <p>Jinas number 1 to 12 are in the outermost circle, with Rṣabha at the top. Then, facing each other in pairs, first left then right:</p> <ul style="list-style-type: none">▪ Sambhava and Ajita▪ Sumati and Abhinandana▪ Supārśva and Padmaprabha▪ Suvidhi and Candraprabha▪ Suvidhi and Śītala
Third circle	<ul style="list-style-type: none">▪ Vāsupūjya and Śreyāmsa.

Identification of Jinas in maṇḍala

Each Jina is depicted in his colour, along with his Śvetāmbara emblem – lāñchana.

The maṇḍala is protected by glass and mounted in a brass case with a lid. A paper inside the lid contains the key to the picture in English. According to the 1975 *British Library Journal* ('Department of Oriental Manuscripts and Printed Books', volume 1, pages 99–104), this object is one of those the British Library acquired between July and December 1973. It is described as coming from Jaipur, dating back to the 19th century and having been presented by 'Mr. and Mrs. E. M. Prokofiev' (page 102).

The maṇḍala is more likely to have been in the house of a Jain lay man than in a temple. An object such as this one could be used for worship or as an aid for meditation or contemplation.

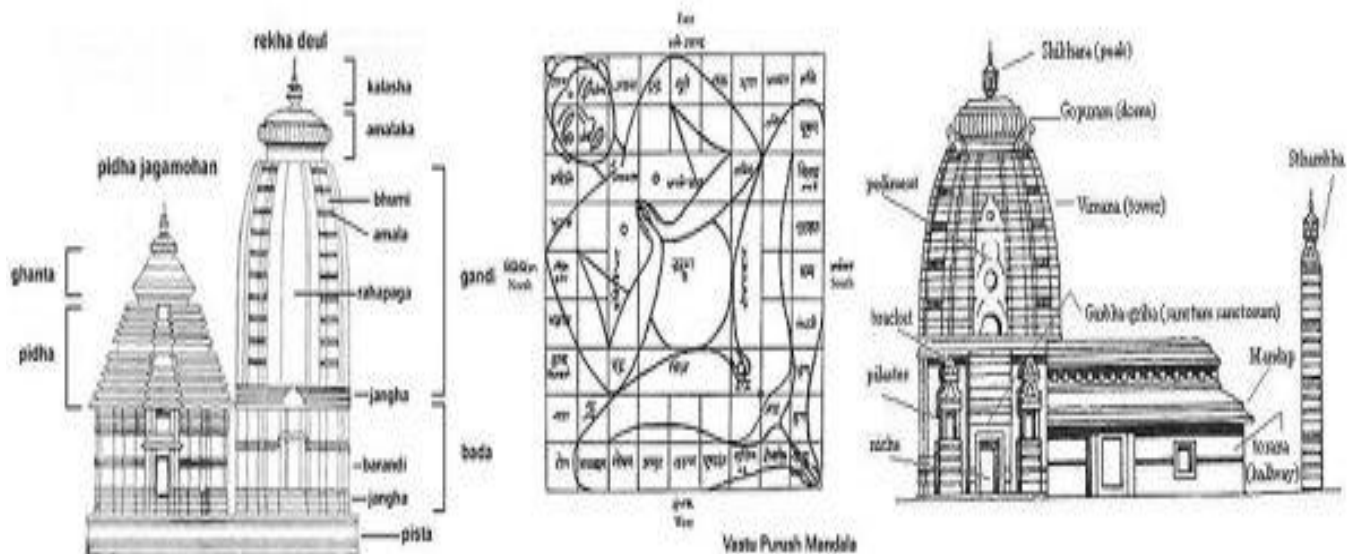


Both the Digambara and Shvetambara icon-worshipping Jains posit that the cosmos is filled with eternal icons. This cosmological “narrative” is analyzed as a defense of icons: if they are eternal and uncreated, then their ritual use is appropriate. According to Jain cosmology, there are eternal icons on the continent of Nandishvara Dvipa, on the axial Mount Meru, and at the four gateways to Black-Plum Continent (Jambu Dvipa). These eternal icons are described in cosmological texts,

and are vectored into contemporary Jain ritual culture through hymns, temple architecture, rituals, and annual festivals. In each of the cosmological examples, the icons are found in temples that in turn are arranged in highly geometric formations. These formations, whether square or circular, are closely related to *mandalas*. The chapter then frames the eternal icons as *mandalas*, and also shows how a more adequate understanding of *mandalas* in Asian religions should see that they are three-dimensional formations of icons, and not just two-dimensional painted representations. Descriptions of the eternal icons are found in many Shvetambara scriptures, texts that are accepted by both the iconophilic Murtipujakas and the iconoclastic Sthanakavasis. The Sthanakavasis, therefore, have had to develop a scriptural hermeneutic that interprets the key term of *chaitya* (“image”) as referring not to images but to knowledgeable people. A Cosmos Filled with Eternal Icons: Icons, Cosmology, Mandalas, and Scripture-John E. Cort (Contributor Webpage) from the book : Framing the Jina: Narratives of Icons and Idols in Jain History, John Cort, 2009, Oxford Scholarship Online: February 2010

ANGKOR WAT

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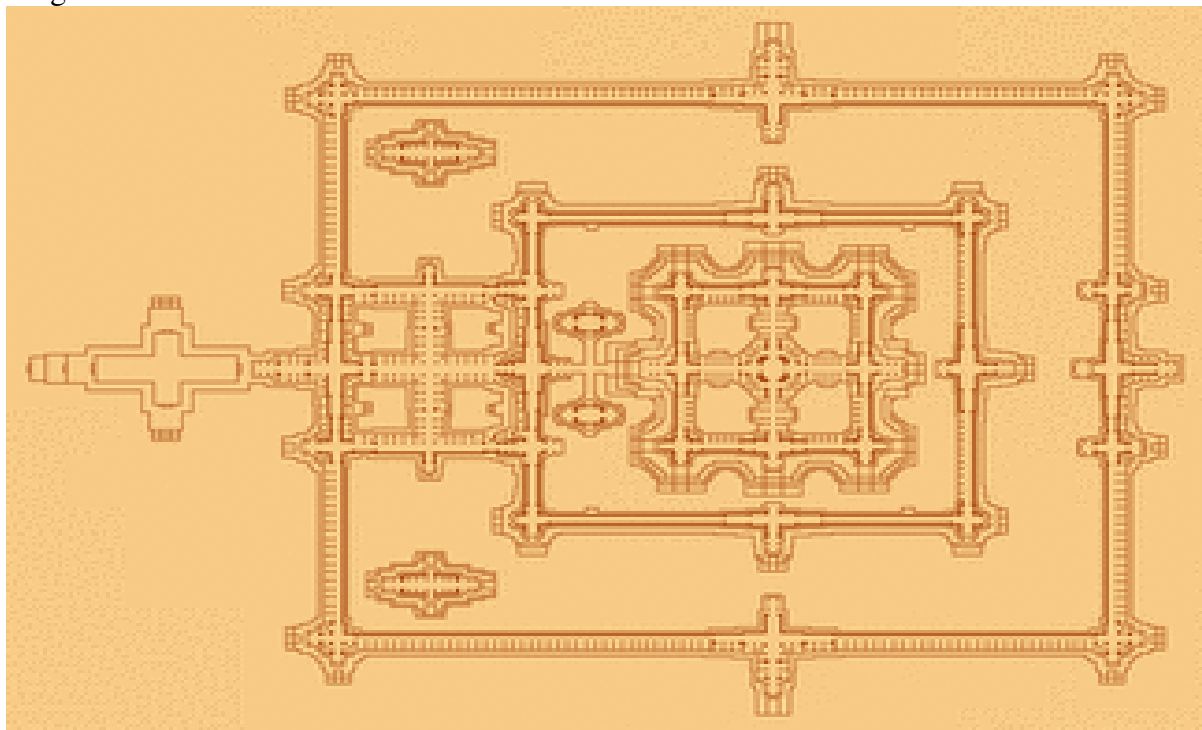
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Note how the architectural layout of the temple greatly resembles the symbol of Mandala. For example, you can spot the building's centre point, as well as the four gates on the outermost wall.



Rough Layout of Angkor Wat



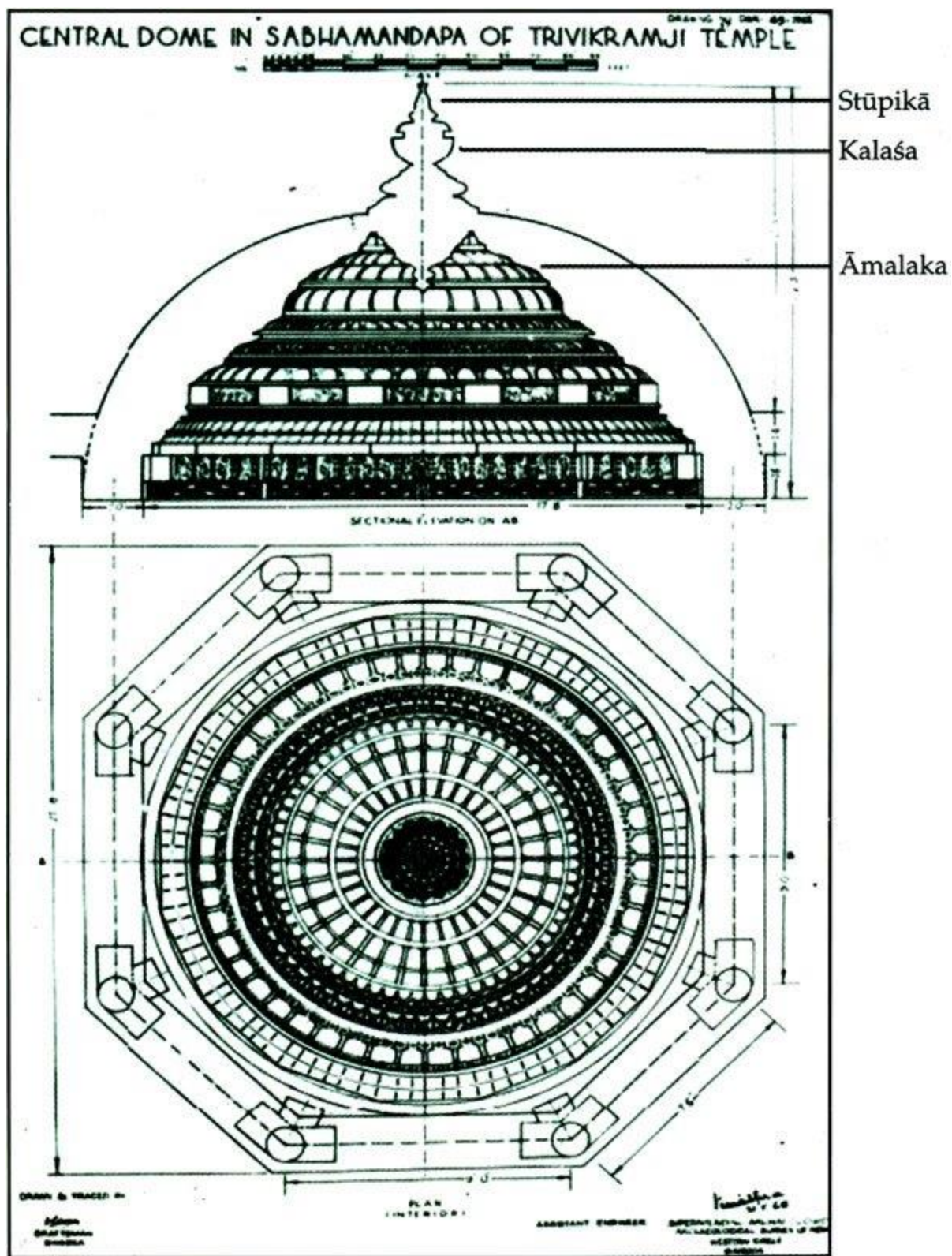


The Third Tier GOPURAM

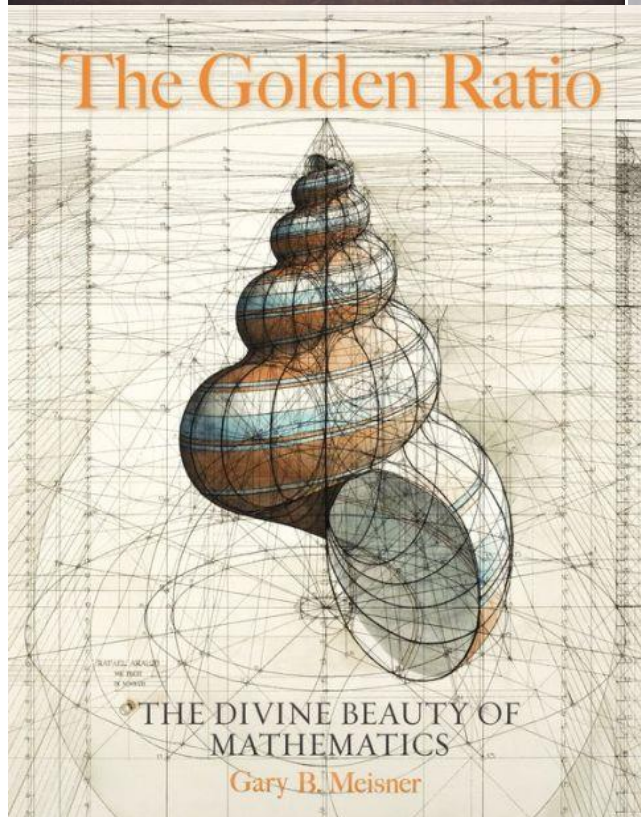
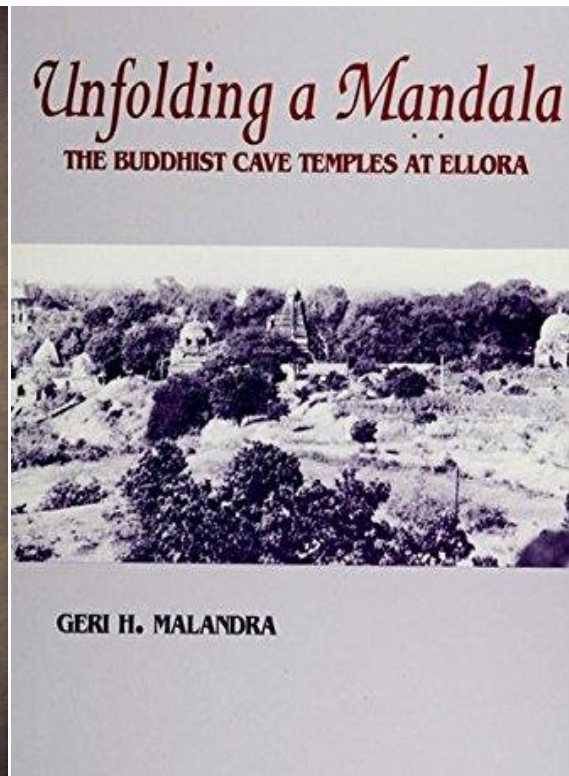
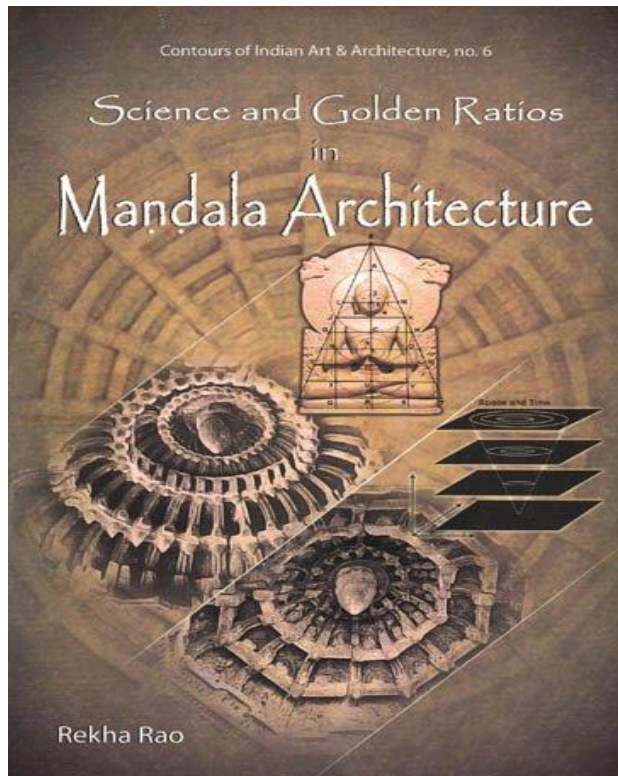


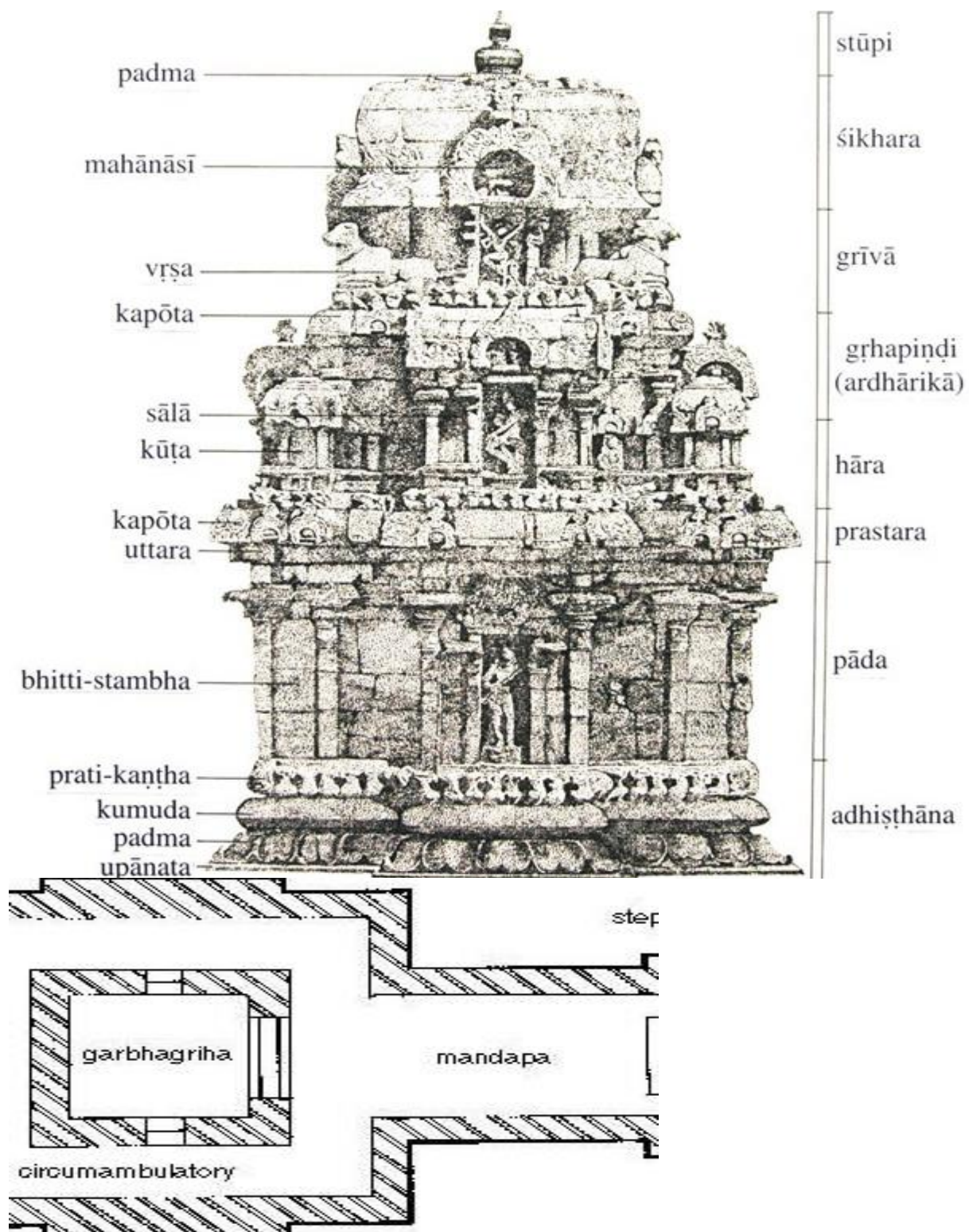


វិចិត្រសាល ប្រឹក្សាស្ថាប័ន អង្គរ២០១១



Pl. 2: Figure of the plan and cross-section of the śikhara, with stūpikā.





“The Vastu Purusha Mandala represents the manifest form of the Cosmic Being; upon which the temple is built and in whom the temple rests. The temple is situated in Him, comes from Him, and is a manifestation of Him. The Vastu Purusha Mandala is both the body of the

Cosmic Being and a bodily device by which those who have the requisite knowledge attain the best results in temple building.” – Stella Kramrisch ; The Hindu Temple, Vol. I

Vastu Purush Mandala has been in existence for thousands of years, will continue till eternity. It is the fundamental principle which continues to create and run the whole universe - both at the macro and the micro level. If we can decode its secret and follow its eternal principles for construction, we can ensure a life full of health, wealth, peace and prosperity.

The Vastu Purush Mandala is a cosmic geometrical wonder used to design temples amongst other structures. When we observe the energy fields that develop at different stages of a building – starting from the stage of a vacant plot - to the digging of land - to the laying of the foundation - to the completion of the building - and finally to the point when it is inhabited by the people – we unravel the secrets of the Vastu Purusha Mandala.

Image of the Universe: The Vastu Mandala is the omnipresent, omnipotent soul of every building. It is based on the principle that Man and Universe are analogous in their structure and spirit. Vastu Purush Mandala is thus a Yantra or an image of the Universe. Hindus believe that the body is the image of the entire Universe (See figure below). Vastu Purusha Mandala is a combination of 45 Devas and Asuras present in a geometrical figure. The Devas represent our consciousness and the Asuras our ignorance and fear. The war between consciousness and ignorance goes on each moment within all of us. It is not just a Puranic story, it's the reality we live in each moment.

DECODING THE DEVAS & ASURAS The 45 Energy Fields PADAVINAYASA ModularGrid After Shilanyas and construction of foundation walls, this is the first energy field to develop in the plot.

BRAHMA DEVAS vs ASURAS THE ETERNAL WAR- Energy Fields Next to Brahma
ARYAMA The Power of Connections **VIVASWAN** The Power of Revolution or Change
MITRA The Power of Inspiration & Action **BHUDHAR** The Power of Manifestation **DEVA VITHI**

The 8 Energy Fields in the Diagonal Directions **NORTH EAST** Apaha Apahavatsa
SOUTH WEST Indra Indrajaya **SOUTH EAST** Savita Savitur **NORTH WEST** Rudra
Rajyakshma **MANUSHYA VITHI**

1. **NORTH EAST APAHA** Generates the energies responsible for healing **APAHAVATSA**
Carries the healing powers to the occupants www.anantvastu.com
2. **SOUTH EAST SAVITA** Energies that help to initiate any process or action **SAVITUR**
Energies that give capabilities to continue those actions and overcome all challenges
3. **SOUTH WEST INDRA** Energies that establish stability and enhance growth
INDRAJAYA The tools and the channels through which one can achieve growth

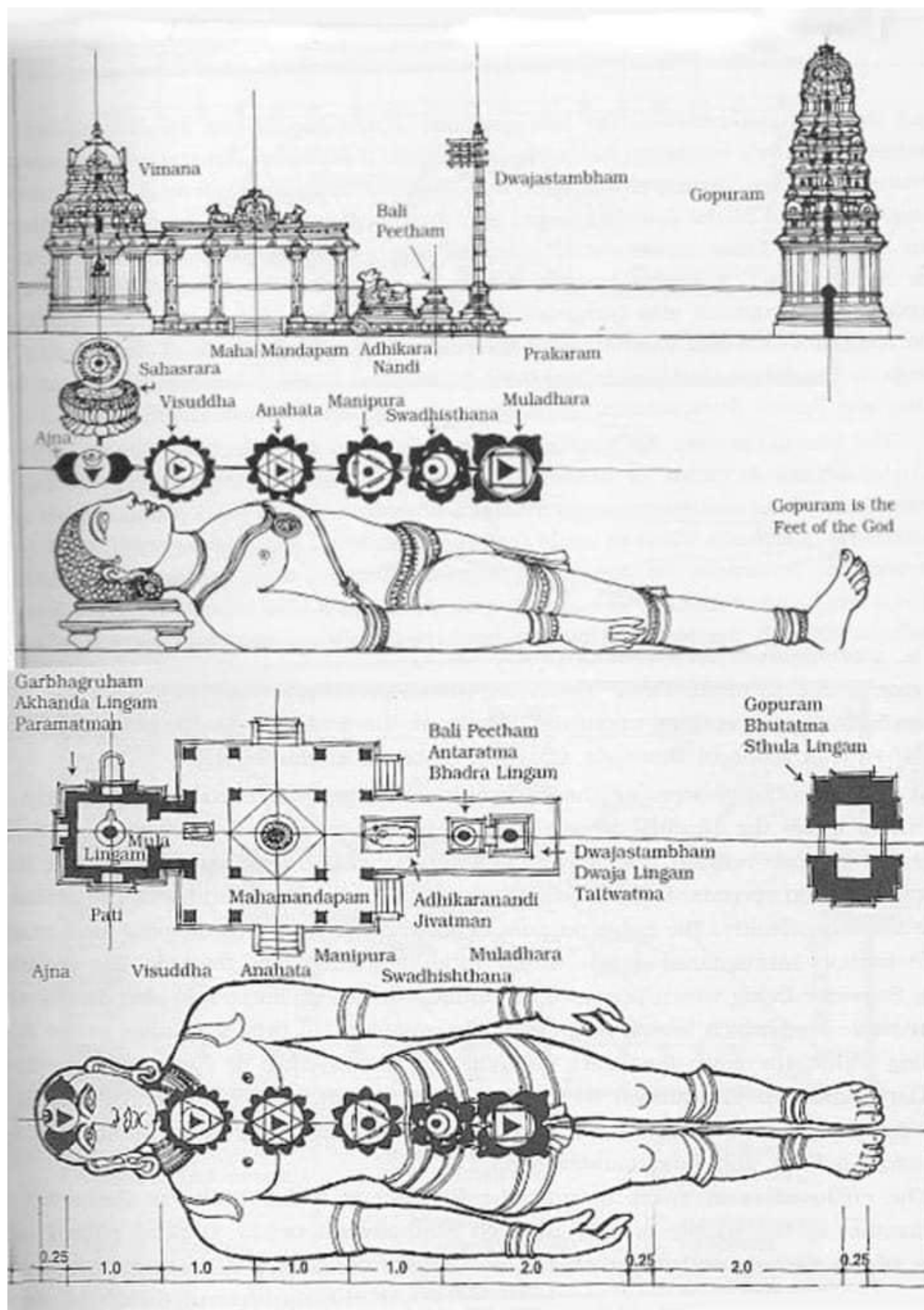
4. .NORTH WEST RUDRA Energies responsible for support and ensure flow of activities and life RAJYAKSHMA Energies which uphold the support and stabilise the mind . The 32 Energy Fields of the Outer Periphery PAISHACHA VITHI . These are also the 32 Possible Entrance Locations . The 32 Energy Fields of the Outer Periphery ADITI Mother of the Devas, this energy field provides security and helps one connect with himself/herself) DITI Mother of the Asuras, this energy field gives the powers of a wider vision and to see the actual truth of life.SHIKHI Symbolic of a pointed flame, this field gives the power of ideas and the ability to project one's thoughts to the world PARJANYA The giver of rains, this field has the powers to bless the occupants with fertility and fulfilment of all their wishes NORTH EAST
5. SOUTH EAST BHRISHA The power of friction needed to initiate any action , thinking or activity AAKASH The energy that provides the space for manifestation ANILA The energy of air or vayu, it helps to uplift the fire or push further the actions initiated PUSHAN The energy of nourishment, it blocks the path of enemies The 32 Energy Fields of the Outer Periphery.
6. SOUTH WEST BHRINGRAJ The energy which extracts nutrients from the food and removes the waste MRIGHA The energy that drives curiosity and imparts skills PITRA The energy of the ancestors which provides all means of safety and happiness required for existence DAUWARIK The safe keeper, represents lord Nandi-the trusted vehicle of lord Shiva. The energy of being genius and highly knowledgeable The 32 Energy Fields of the Outer Peripher
7. NORTH WEST SHOSHA The power of detoxification from negative emotions PAPYAKSHMA The energy which gives addiction, diseases and the feeling of guilt ROGA The energy which provides support in the hour of need NAGA The energy which gives emotional enjoyments and cravings The 32 Energy Fields of the Outer Periphery
8. NORTH MUKHYA The chief architect or lord Vishwakarma, this energy field defines the main purpose of the building & also helps in their manifestation BHALLAT The energy field which grants colossal abundance, it magnifies the efforts and their results SOMA The energy field of Kubera - the lord of all wealth and money. It ensures a smooth flow of money and opportunities BHUJAG The the lord of hidden treasures, this energy field is the preserver of medicines. It safeguards the health of the occupants The 32 Energy Fields of the Outer Periphery
9. EAST JAYANT The energy which gives the sense of being victorious, it refreshes the mind and body MAHENDRA The energy which grants the power of administration and connectivity SURYA The core controller, this energy fields imparts health , fame and farsightedness SATYA The energy which establishes goodwill, status, authenticity and credibility The 32 Energy Fields of the Outer Periphery
10. SOUTH VITATHA The energy field of falsehood, pretension and the unreal GRUHAKSHAT The power which binds the mind and defines its limits YAMA The power of expansion, this energy field binds the world in laws GANDHARVA The energy

of preservation of health & vitality. This energy also governs all kinds of arts and music
The 32 Energy Fields of the Outer Periphery

11. WEST SUGREEV The power which grants the ability to receive all knowledge
PUSHPADANT The power which grants blessings and fulfills all desires VARUN The
lord of the seas, this energy field observes and runs the whole world. It is the granter of
immortality ASURA The the energy field that releases the mind from temptations and
gives depth in spirituality The 32 Energy Fields of the Outer Periphery.

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CHAPTER VI

The *Vastu-Purusha-Mandala* in Temple Architecture

DESIGN CONSIDERATIONS

Design of all Hindu religious structures is always in accordance to ancient Indian Temple Vastushastra. All proportions, details and forms are derived from intensive study of aspects like Nakshatras or constellations of stars, Disha or direction, Name of the deity and donor/ trustee.

Architectural priorities have been either designing and Execution of superior quality of Temple complex and or dismantling, reassembling, Repairs, Renovation, Reconstruction and Proposed projects. Other ancillary work like making of stone and cements-fine finished Vimanam, Gopuram, Ornamental design work, Sudhai Vigrahams. Rough Dressing, Carving and finishing of stone and idols and Wood carving.

PROPOSAL

The proposal to take up combined projects of the above type or assist in the same in working towards the objective was driven mostly by interest. In ancient Indian texts; a temple is a place for *Tirtha* - pilgrimage. It is a sacred site whose ambience and design attempts to symbolically condense the ideal tenets of Hindu way of life. All the cosmic elements that create and celebrate life in Hindu pantheon, are present in a Hindu temple - from fire to water, from images of nature to deities, from the feminine to the masculine, from kama to artha, from the fleeting sounds and incense smells to Purusha - the eternal nothingness; yet universality - is part of a Hindu temple architecture.

The architectural principles of Hindu temples in India are described in Shilpa Shastras and Vastu Sastras. The Hindu culture has encouraged aesthetic independence to its temple builders, and its architects have sometimes exercised considerable flexibility in creative expression by adopting other perfect geometries and mathematical principles in *Mandir* construction to express the Hindu way of life.

Susan Lewandowski states that the underlying principle in a Hindu temple is built around the belief that all things are one, everything is connected. The pilgrim is welcomed through

mathematically structured spaces, a network of art, pillars with carvings and statues that display and celebrate the four important and necessary principles of human life - the pursuit of artha (prosperity, wealth), the pursuit of kama (desire), the pursuit of dharma (virtues, ethical life) and the pursuit of moksha (release, self-Knowledge.)



Hindu temple sites cover a wide range. The most common sites are those near water bodies, embedded in nature, such as the one at Badami, Karnataka. The **Hindu temple architecture** is an open, symmetry driven structure, with many variations, on a square grid of *padas*, depicting perfect geometric shapes such as circles and squares.

Shiva temple, the main shrine of Prambanan, a UNESCO World Heritage Site and the largest Hindu temple in Indonesia. Angkor Wat, a World Heritage Site and also one of the world's largest Hindu temples in the world deploy the same circles and squares grid architecture as described above. At the center of the temple, typically below and sometimes above or next to the deity, is mere hollow space with no decoration, symbolically representing *Purusa*, the Supreme Principle, the sacred Universal, one without form, which is present everywhere, connects everything, and is the essence of everyone. A Hindu temple is meant to encourage reflection, facilitate purification of one's mind, and trigger the process of inner realization within the devotee. The specific process is left to the devotee's school of belief. The primary deity of different Hindu temples varies to reflect this spiritual spectrum.

The site

The appropriate site for a Mandir is a harmonious space near water and gardens, where lotus and flowers bloom, birds are heard, where animals rest without fear of injury or harm. While major Hindu Mandirs are recommended at sangams (confluence of rivers), river banks, lakes and seashore, *Brhat Samhita* and *Puranas* suggest temples may also be built where a natural source of water is not present. Here too, they recommend that a pond be built preferably in front or to the left of the temple with water gardens. If water is neither present naturally nor by design, water is symbolically present at the consecration of temple or the deity. Temples may also be built, suggests *Visnudharmottara* in Part III of Chapter 93 inside caves and carved stones, on hill tops affording peaceful views, mountain slopes overlooking beautiful valleys, inside forests and hermitages, next to gardens, or at the head of a town street.

The Vastu-Purusha-Mandala¹

The Vastu Purusha Mandala is an indispensable part of vastu shastra and constitutes the mathematical and diagrammatic basis for generating design. It is the metaphysical plan of a building that incorporates the course of the heavenly bodies and supernatural forces. The goal of a temple's design is to bring about the descent or manifestation of the un-manifest and unseen. The architect or *sthapati* begins by drafting a square. The square is considered to be a fundamental form. It presupposes the circle and results from it. Expanding energy shapes the circle from the center; it is established in the shape of the square. The circle and curve belong to life in its growth and movement. The square is the mark of order, the finality to the expanding life, life's form and the perfection beyond life and death. From the square all requisite forms can be derived: the triangle, hexagon, octagon, circle etc. The architect calls this square the *vastu-purusha-mandala-vastu*, the manifest, *purusha*, the Cosmic Being, and *mandala*.

The vastu-purusha-mandala represents the manifest form of the Cosmic Being; upon which the temple is built and in whom the temple rests. The temple is situated in Him, comes from Him, and is a manifestation of Him. The vastu-purusha-mandala is both the body of the Cosmic Being and a bodily device by which those who have the requisite knowledge attain the best results in temple building.

In order to establish the vastu-purusha-mandala on a construction site, it is first drafted on planning sheets and later drawn upon the earth at the actual building site. The drawing of the

mandala upon the earth at the commencement of construction is a sacred rite. The rites and execution of the vastu-purusha-mandala sustain the temple in a manner similar to how the physical foundation supports the weight of the building.

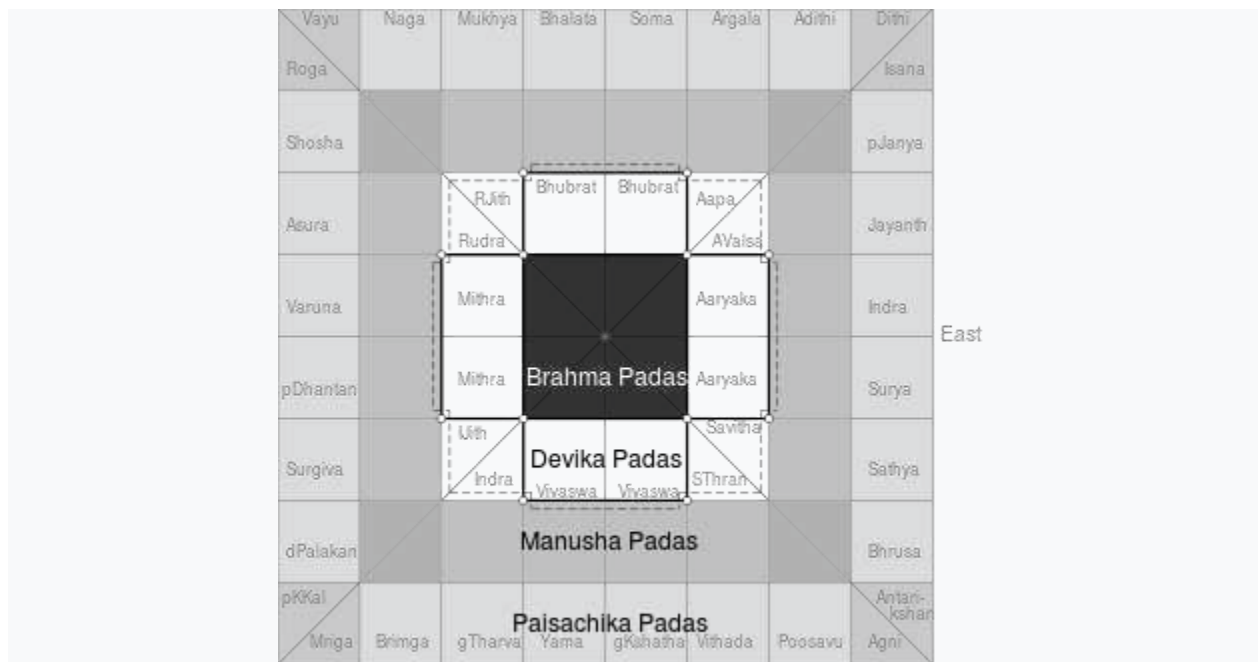
Based on astrological calculations the border of the vastu-purusha-mandala is subdivided into thirty-two smaller squares called nakshatras. The number thirty-two geometrically results from a repeated division of the border of the single square. It denotes four times the eight positions in space: north, east, south, west, and their intermediate points. The closed polygon of thirty-two squares symbolizes the recurrent cycles of time as calculated by the movements of the moon. Each of the nakshatras is ruled over by a Deva, which extends its influence to the mandala. Outside the mandala lie the four directions, symbolic of the meeting of heaven and earth and also represent the ecliptic of the sun-east to west and its rotation to the northern and southern hemispheres.



The center of the mandala is called the station of Brahma, the creator of the universe. Surrounding Brahma are the places of twelve other entities known as the sons of Aditi, who assist in the affairs of universal management. The remaining empty squares represent akasha or pure space. The vastu-purusha-mandala forms a diagram of astrological influences that constitute

the order of the universe and the destinies of human lives. When placed on the building site, along with astrological calculations, can the auspicious time to begin temple construction be determined.

The layout As mentioned earlier a Hindu temple design follows a geometrical design called *vastu-purusha-mandala*. The name is a composite Sanskrit word with three of the most important components of the plan. *Mandala* means circle, *Purusha* is universal essence at the core of Hindu tradition, while *Vastu* means the dwelling structure. Vastupurushamandala is a yantra. The design lays out a Hindu temple in a symmetrical, self-repeating structure derived from central beliefs, myths, cardinality and mathematical principles.



Manduka Mandala - Hindu Temple 64 padas

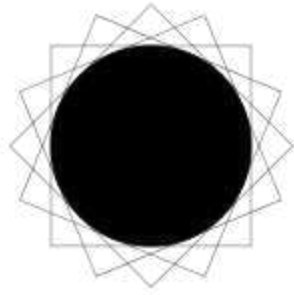
The 8x8 (64) grid Manduka Hindu Temple Floor Plan, according to Vastupurusamandala. The 64 grid is the most sacred and common Hindu temple template. The bright saffron center, where diagonals intersect above, represents the Purusha of Hindu philosophy.

The four cardinal directions help create the axis of a Hindu temple, around which is formed a perfect square in the space available. The circle of mandala circumscribes the square. The square is considered divine for its perfection and as a symbolic product of knowledge and human

thought, while circle is considered earthly, human and observed in everyday life (moon, sun, horizon, water drop, and rainbow). Each supports the other. The square is divided into perfect square grids. In large temples, this is often an 8x8 or 64 grid structure. In ceremonial temple superstructures, this is an 81 sub-square grid. The squares are called “padas”. The square is symbolic and has Vedic origins from fire altar, Agni. The alignment along cardinal direction, similarly is an extension of Vedic rituals of three fires. This symbolism is also found among Greek and other ancient civilizations, through the gnomon. In Hindu temple manuals, design plans are described with 1, 4, 9, 16, 25, 36, 49, 64, 81 up to 1024 squares; 1 pada is considered the simplest plan, as a seat for a hermit or devotee to sit and meditate on, do yoga, or make offerings with Vedic fire in front. The second design of 4 padas has a symbolic central core at the diagonal intersection, and is also a meditative layout. The 9 pada design has a sacred surrounded center, and is the template for the smallest temple. Older Hindu temple vastumandalas may use the 9 through 49 pada series, but 64 is considered the most sacred geometric grid in Hindu temples. It is also called Manduka, Bhekapada or Ajira in various ancient Sanskrit texts. Each pada is conceptually assigned to a symbolic element, sometimes in the form of a deity or to a spirit or apasara. The central square(s) of the 64 is dedicated to the Brahman (not to be confused with Brahmin), and are called Brahma padas.

In a Hindu temple’s structure of symmetry and concentric squares, each concentric layer has significance. The outermost layers, Paisachika padas, signify aspects of Asuras and evil; the next inner concentric layer is Manusha padas signifying human life; while Devika padas signify aspects of Devas and good. The Manusha padas typically houses the ambulatory. The devotees, as they walk around in clockwise fashion through this ambulatory to complete Parikrama (or Pradakshina), walk between good on inner side and evil on the outer side. In smaller temples, the Paisachika pada is not part of the temple superstructure, but may be on the boundary of the temple or just symbolically represented.

The Paisachika padas, Manusha padas and Devika padas surround Brahma padas, which signifies creative energy and serves as the location for temple’s primary idol for darsana. Finally at the very center of Brahma padas is *Garbhagruha* (*Garbha*- Centre, *gruha*- house; literally the center of the house) (Purusa Space), signifying Universal Principle present in everything and everyone. The spire of a Hindu temple, called Shikhara in north India and Vimana in south India, is perfectly aligned above the Brahma pada (s).



A Hindu temple has a Shikhara (Vimana or Spire) that rises symmetrically above the central core of the temple. These spires come in many designs and shapes, but they all have mathematical precision and geometric symbolism. One of the common principles found in Hindu temple spires is circles and turning-squares theme (left), and a concentric layering design (right) that flows from one to the other as it rises towards the sky.

Beneath the mandala's central square(s) is the space for the formless shapeless all pervasive all connecting Universal Spirit, the Purusha. This space is sometimes referred to as garbha-griya (literally womb house) - a small, perfect square, windowless, enclosed space without ornamentation that represents universal essence. In or near this space is typically a murti (idol). This is the main deity idol, and this varies with each temple. Often it is this idol that gives it a local name, such as Visnu temple, Krishna temple, Rama temple, Narayana temple, Siva temple, Lakshmi temple, Ganesha temple, Durga temple, Hanuman temple, Surya temple, and others. It is this garbha-griya which devotees seek for “darsana” (literally, a sight of knowledge, or vision).

Above the vastu-purusha-mandala is a superstructure with a dome called *Shikhara* in north India, and *Vimana* in south India, that stretches towards the sky. Sometimes, in makeshift temples, the dome may be replaced with symbolic bamboo with few leaves at the top. The vertical dimension's cupola or dome is designed as a pyramid, conical or other mountain-like shape, once again using principle of concentric circles and squares (see below). Scholars suggest that this shape is inspired by cosmic mountain of Meru or Himalayan Kailasa, the abode of gods according to Vedic mythology.

In larger temples, the outer three padas are visually decorated with carvings, paintings or images meant to inspire the devotee. In some temples, these images or wall reliefs may be stories from Hindu Epics, in others they may be Vedic tales about right and wrong or virtues and vice, in some they may be idols of minor or regional deities. The pillars, walls and ceilings typically also have highly ornate carvings or images of the four just and necessary pursuits of life - kama, artha, dharma and moksha. This walk around is called *pradakshina*.

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CHAPTER VII

The Mandalic Design of the 1000 Petal Temple



Nizhal Thangal, Attoor, Kanyakumari

.5 Kms from Thiruvattaru, 15 Kms from Thuckalay, 6 Kms from Marthandam, 6 Kms from Kulasekharam, 28 Kms from Nagercoil, 20 Kms from Colachel, 49 Kms from Kanyakumari and 50 Kms from Thiruvananthapuram is the Nizhal Thangal, Attoor temple - one among the few renowned Worship centers of Ayyavazhi in the western Kanyakumari.

It is also the second Thangal built in the Thamarai Thangal series only after the Nizhal Thangal of Nelli-Ninra Vilai, and the first ever Temple built with the Sahasrara architecture.

The *Pathis* and *Nizhal Thangals*, are centers of worship and religious learning for the followers of Ayyavazhi which are established in different parts of India. They served as centres for propagation of the beliefs and practices of Ayyavazhi. There are more than 8000 worship centers throughout India, mostly in Tamil Nadu and Kerala. **Nizhal Thangal, Attoor, Kanyakumari is a pathi and larger temple.** The Pathis are given religious importance than the Nizhal Thangals and are considered as primary worship centers. Since Ayyavazhi is not an organised religion, Swamithoppepathi serves, religiously but not officially, as the headquarters of all.

Ayyavazhi ("Path of the Master") is a henotheistic belief¹ that originated in South India. It is cited as an independent monistic religion by several newspapers, government reports, journals and academic researchers. In Indian censuses, however, the majority of its followers declare themselves as Hindus. Thus, Ayyavazhi is also considered a Hindu denomination. Officially (legally), it exists within Hinduism as a Hindu denomination.

Ayyavazhi is centered on the life and preachings of Ayya Vaikundar; its ideas and philosophy are based on the holy texts *Akilathirattu Ammanai* and *Arul Nool*. Accordingly, Vaikundar was the Purna avatar of Narayana. **Lord Ayya Vaikundar** (c.1833–c.1851; Tamil: அய்யா வைகுண்டர்), known to his followers as **tenth avatar or incarnation of Lord Vishnu**, also called as **Sriman Narayana Vaikundaswamy or Narayana Pandaram**, was a 19th-century social reformer and iconoclast who worked for the upliftment of downtrodden people in the Kingdom of Travancore. He is central to the Hindu denomination of Ayyavazhi, as per holy scripture.

Ayyavazhi shares many ideas with Hinduism in its beliefs and practice, but differs considerably in its concepts of good and evil and dharma. Ayyavazhi is classified as a dharmic belief because of its central focus on dharma.

Ayyavazhi first came to public attention in the 19th century as a Hindu sect. Vaikundar's activities and the growing number of followers caused a reformation and revolution in 19th-century Travancorean and Tamil society, surprising the feudal social system of South India. It also triggered a number of reform movements including those of Narayana Guru and Ramalinga Swamikal.

Though Ayyavazhi followers are spread across India, they are primarily present in South India especially concentrated in Tamil Nadu and Kerala. The number of practitioners is estimated to be between 8,000,000 and 10,000,000 although the exact number is unknown, since Ayyavazhis are reported as Hindus during censuses

The Design: The 100 petal symbol is the Sahasrara or Sahastrar

(Sanskrit: सहस्रार, IAST: *Sahasrāra*, English: "thousand-petaled") or crown chakra is generally considered the seventh primary chakra, according to most tantric yoga traditions.

Architectural -Appearance

The Sahasrara or Sahastrar is described as a lotus flower with 1,000 petals of different colors. These petals are arranged in 20 layers, each layer with approximately 50 petals. The pericarp is golden and within it a circular moon region is inscribed with a luminous triangle, which can be either upward- or downward-pointing.

Often referred to as a *thousand-petaled lotus*, it is said to be the most subtle chakra in the system, relating to pure consciousness, and it is from this chakra that all the other chakras emanate. When a yogi is able to raise his/her kundalini (energy of consciousness) up to this point, the state of Nirvikalpa Samādhi is experienced. Sahasrara or Sahastrar is related to the crown of the head. It is typically associated with the fontanelle and the intersection of the coronal and sagittal sutures of the skull. Various sources will relate it to the pineal gland, hypothalamus or the pituitary gland although these are often given instead as locations of Ajña Chakra. The crown wheel is important within the Anuttarayoga Tantra tradition of Buddhist Vajrayana. It is triangular, with 32 petals or channels that point downwards, and within it resides the white drop or white bodhicitta. Through meditation, the yogi attempts to unite this drop with the red bodhicitta in the navel, and to experience the union of emptiness and bliss. It is very important in the Tantric practice of Phowa, or consciousness transference. At the time of death, a yogi can direct his consciousness up the central channel and out of this wheel in order to be reborn in a Pure Land, where he can carry on his tantric practices, or transfer that consciousness into another body or a corpse, in order to extend life.

In the West, it has been noted by many (such as Charles Ponce in his book *Kabbalah*.) that Sahasrara expresses a similar archetypal idea to that of Kether, in the Kabbalistic Tree of Life, which rests at the head of the tree, and represents pure consciousness and union with God.





History

Though this Thangal was built in 1988, the new structure with Sahasrara architecture was built recently. The foundation stone for the new structure was laid in 2005 by Bala Prajapathi Adikalar and was inaugurated by him on 23 April 2007.



**Architecture**

This is one of the Nizhal Thangals in Kanyakumari district (west) built in 'Lotus architecture'(Sahasrara). It's top-roof is covered by 1008 lotus petals. The Thangal was constructed facing the geographic east and daily Panividais are conducted here twice (5.00 am and 5.00 pm) and Ucchi-Panividais are conducted on every Sundays at 12.00 noon. The newly built structure was inaugurated on 23rd April 2007 by Bala Prajapathi Adikalar, the present Pattathu Ayya of Swamithoppu Pathi.





Festivals

Thiru Edu-Vasippu is the main festival conducted here. The festival includes a celebration for 10 days starting from the second Friday of the Tamil month of Chithirai (April/May) every year. The 15141 verses of holy text Akilathirattu Ammanai is ceremonially recited during the 10 festival days. Religious conferences are also held every year. Ayya Vaikunda Avatharam is the second most popular festival which is held usually on the 18th of the Tamil month of Masi. Special Panividais are conducted and Annual celebration of the Akila-Ara Patasalai (spiritual schools) are held along with the Masi Celebration. Other festivals including Thirukarthigai, Diwali etc. are also celebrated with high fervor.

The Pathis and Nizhal Thangals, are centers of worship and religious learning for the followers of Ayyavazhi which are established in different parts of India. They served as centres for propagation of the beliefs and practices of Ayyavazhi. There are more than 8000 worship centers throughout India, mostly in Tamil Nadu and Kerala. The Pathis are given religious importance than the Nizhal Thangals and are considered as primary worship centers. Since Ayyavazhi is not an organised religion, Swamithoppepathi serves, religiously but not officially, as the headquarters of all.

Generally two facts are required to accredit a site as Pathi, They are

1. The site(place) should be historically associated with the incarnational activities of Vaikundar.
2. The site should be mentioned in Akilam by referring it using the term 'Pathi' .

Nizhal Thangal (Tamil: நிழல் தாங்கல்; also called Inai Thangals) are secondary worship places of the Ayyavazhi, often smaller in size compared to Pathis, built per the instructions of Akilattirattu Ammanai. Cleanliness is strictly enforced.

Though the common people, mainly in early times call them as Narayanaswami koil or Narayanaswami pathi, the Ayyavazhi scriptures consider these centers distinct from The Pathis. They call these worship centers, which were not associated with the religious activities of Vaikundar as 'Inai Thangals'.

Unlike Pathis this Thangals were of small size. Inside the Nizhal Thangals, no murti or idol is used. The Palliyarai of Thangals generally seems similar to Pathis. But inside, in most of the Thangals instead of raised pedestal, chairs were placed as asanas in which the saffron or silk cloths are wrapped-around. A garland made of rudraksha (string of rudraksha beads) is placed around the neck of the asana. Mirrors were placed behind. In front of these there will be two standing oil lamps(kuthu vilakku)made of brass, each placed on the either side of the asana.

In some of the Thangals there will be inner corridors as pathis to circumambulate the Palliyarai. A hall is attached to this palliyarai for the worshippers. In some of the Thangals there are flag masts, Vahanas and temple cars etc.



Ayyavazhi Symbols representing 1000 lotuses

Ayyavazhi: The Sociological and Mystical Teachings, Benjamin Grove, 2013<https://sites.psu.edu/themaskswewear/2013/10/03/ayyavazhi-the-sociological-and-mystical-teachings/>

Do you ever feel that you are acting as a bystander to all of the terrors happening around you? Do you wish to take the initiative to prevent such atrocities from damaging the lives of others as well as yourself? This may seem like a daunting task, but it is available with a reminder



with t he right type of

Perhaps you do not have to directly make a significant change, but you can still others to help reestablish social justice throughout the world. Hopefully, then, you will have the means to reveal the true divine knowledge that has been veiled by the injustice of modern human relations and governmental policies. But let's not get carried away here.

Kali, Goddess of Change and Time

If this is your goal, then the teachings of Ayyavazhi will certainly lead you in the right direction. A South Indian dharmic belief system achieving official recognition in the nineteenth century as a Hindu Sect, Ayyavazhi breaks its teachings down into two main categories. These are the mystical teachings and the social teachings. The mystical teachings are primarily concerned with the individual finding the means to reveal divine knowledge into his life. However, the Ayyavazhi practitioner must be aware of the nefarious intents of the evil of Kali, who tries to disturb the connection between the soul and the universe, giving the individual a false sense of identity that is often just feeding into the ego. With this, members of the sect may develop a sense of hubris that will make them feel that they are more powerful or successful than the people around them, when they are actually just making it more difficult for themselves to gain genuine respect and admiration from their peers. The second aspect of Ayyavazhi teachings is sociological. This facet is concerned with ensuring that the people on earth are treated equally and fairly. Naturally, Ayyavazhi holds a general distaste for the caste system, a long-running tradition throughout India that was based on social stratification, dividing labor and wealth to the Indian citizens based on hereditary background and social class.

In regards to ethics, Ayyavazhi places most of its value in a concept known as Neetham. The idea behind Neetham is that the citizens, authority, and rulers all live in complete harmony and thus allow nature to be their ultimate protector. At a young age, practitioners always act in support of God, so they can then make this a habit for the rest of their lives. The Ayyavazhi people strive to live in union, so if an outside threat ever comes, they will always have strength in numbers.

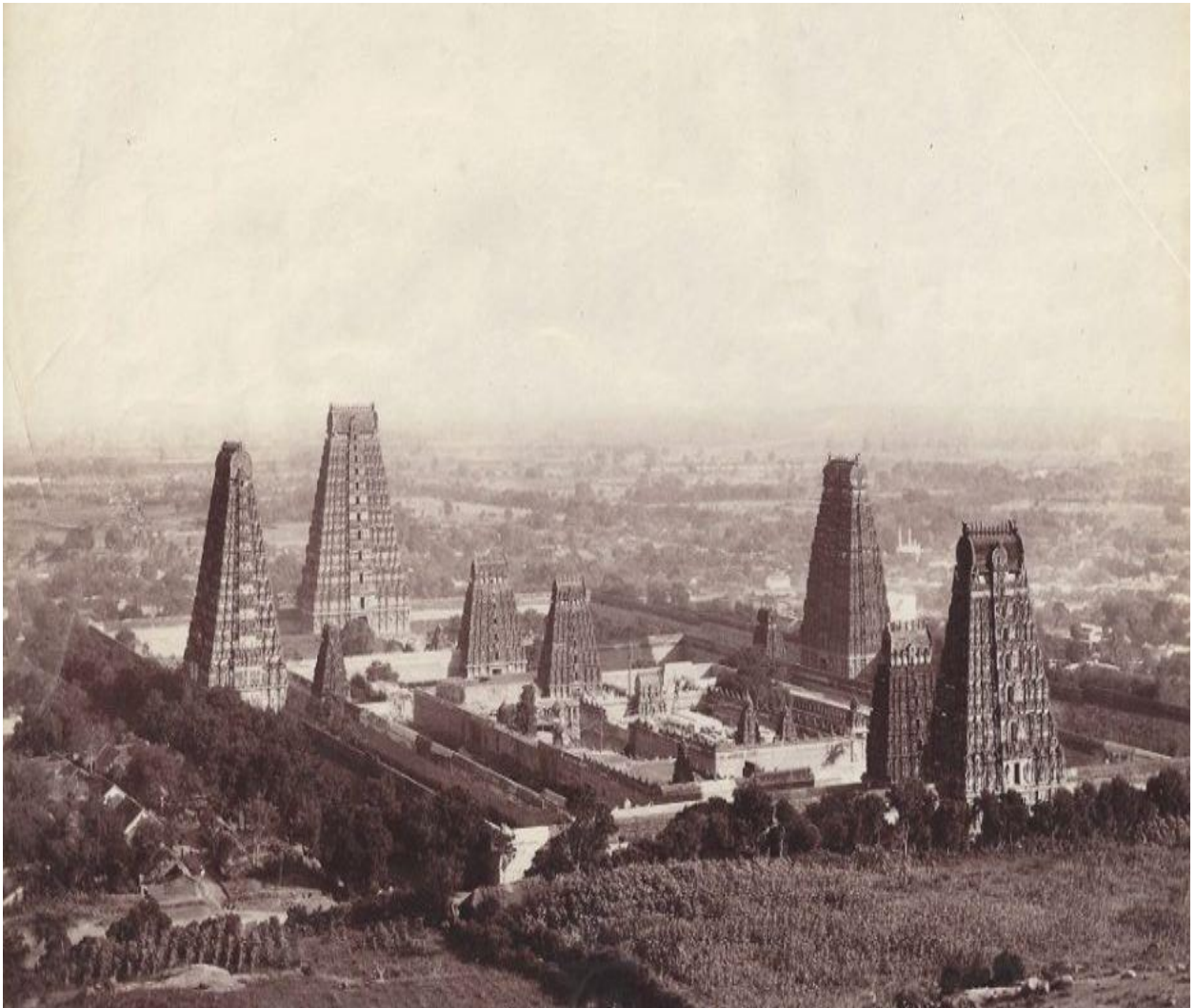


I think it would actually be really difficult for many of us to bring the teachings of Ayyavazhi into their lives. As I was looking into the evil of Kali, it too accurately described how we view individuality. They constantly feed us this idea that our lives are predominantly “personal,” and have forgotten what it truly means to be in union. Ayyavazhi emphasizes the importance of “oneness,” which means oneness with the world. It is one of those belief systems that can truly improve how you feel about your own life while also giving you the tools to improve the lives of others, having both mystical and sociological facets, because it can help you control reality as well as your imagination.

CHAPTER VIII

HINDU TEMPLE AND THE STRUCTURE OF HUMAN BODY: COMPARISON

“The vastu-purusha-mandala represents the manifest form of the Cosmic Being; upon which the temple is built and in whom the temple rests. The temple is situated in Him, comes from Him, and is a manifestation of Him. The vastu-purusha-mandala is both the body of the Cosmic Being and a bodily device by which those who have the requisite knowledge attain the best results in temple building.” (Stella Kramrisch,; The Hindu Temple,Vol. I)



A Temple's Garba-griham (main sanctum) is equated with human head; antarala (vestibule) is equated with human neck; ardha – mandapam (half-hall) is compared with human chest; maha –

mandapam (main hall) is equated with the stomach; flag-post is viewed along with human male organ; and gopuram or temple gateway tower is viewed along with human feet.

“Everything is governed by one law. A human being is a microcosmos, i.e. the laws prevailing in the cosmos also operate in the minutest space of the human being.” The Agama shastras are based in the belief that the divinity can be approached in two ways. It can be viewed as nishkala, formless – absolute; or as sakala having specific aspects.

Nishkala is all-pervasive and is neither explicit nor is it visible. It is analogues, as the Agama texts explain, to the oil in the sesame-seed, fire in the fuel, butter in milk, and scent in flower. It is in human as antaryamin, the inner guide. It has no form and is not apprehended by sense organs, which includes mind.

Sakala, on the other hand, is explicit energy like the fire that has emerged out of the fuel, oil extracted out of the seed, butter that floated to the surface after churning milk or like the fragrance that spreads and delights all. That energy can manifest itself in different forms and humans can approach those forms through appropriate means. The Agamas recognize that means as the archa, the worship methods unique to each form of energy-manifestation or divinity.

The idea of multiple forms of divinity was in the Vedas. Rig Veda at many places talks in terms of saguna, the supreme divinity with attributes. The aspects of the thirty-three divinities were later condensed to three viz. Agni, the aspect of fire, energy and life on earth; Vayu, the aspect of space, movement and air in the mid-region; and Surya the universal energy and life that sustains and governs all existence, in the heavenly region, the space. This provided the basis for the evolution of the classic Indian trinity, the Brahma, Shiva and Vishnu.

The concept of polytheism gave tremendous impetus to all branches of Indian arts, literature and iconography. The polytheism is, in fact, the lifeblood of iconography; for it is only through a divinity with aspects one can represent and worship one's ideal with love, adoration and earnestness. Making an image involves an understanding of its attributes, virtues, powers, characteristics, symbols and its disposition. An image is the visual and concrete form of idealism; the idioms of beauty, grace and power nurtured and honed by generations after generations. It is a representation of a community's collective aspirations.

Since the very purpose of the temple structure is the image residing in it; and the temple is regarded the virtual expansion of the image, let us talk for a while about temple iconography.

The word icon is derived from Greek eikon; and it stands for a sign or that which resembles the god it represents. In the Indian tradition what is worshipped is Bimba, the reflection or Prathima, the image of god, but not the god itself. Bimba means reflection, like the reflection of moon in a tranquil pool. That reflection is not the moon but an image (prathima) of the moon. In other words, what is worshipped in a temple is an idea, a conception or the mental image of god, translated to a form in stone or metal or wood; but, it is not the god itself.

The structural harmony, the rhythm and a fine sense of proportion is the hall mark of Indian temple architecture. It not merely resolves the contradictions but also expresses harmony by encompassing all contradictions, transforming into pure and uncompromised details of structure. The aim of a proportional system, meaning not merely symmetry, is to manifest a sense of coherence and harmony among the elements of the temple and it's whole.

The proportional harmonization of design, therefore, is of utmost importance in the construction of a temple. It is believed that the power and purity of the structure radiates from its exact proportions and measures as specified in the texts. It is also believed that a meticulously well constructed temple radiates peace and joy; and ensures the welfare of the world and its people.

Without harmony, symmetry and proportion there can be no principles in the design of any temple. This is analogous to the precise relation between the features and organs of a well proportioned, good-looking person. The ancient texts, therefore, insist on a high degree of precision in their measurements.

The standard text mentions “Only if the temple is constructed correctly according to a mathematical system can it be expected to function in harmony with the universe. Only if the measurement of the temple is in every way perfect, there will be perfection in the universe as well.”

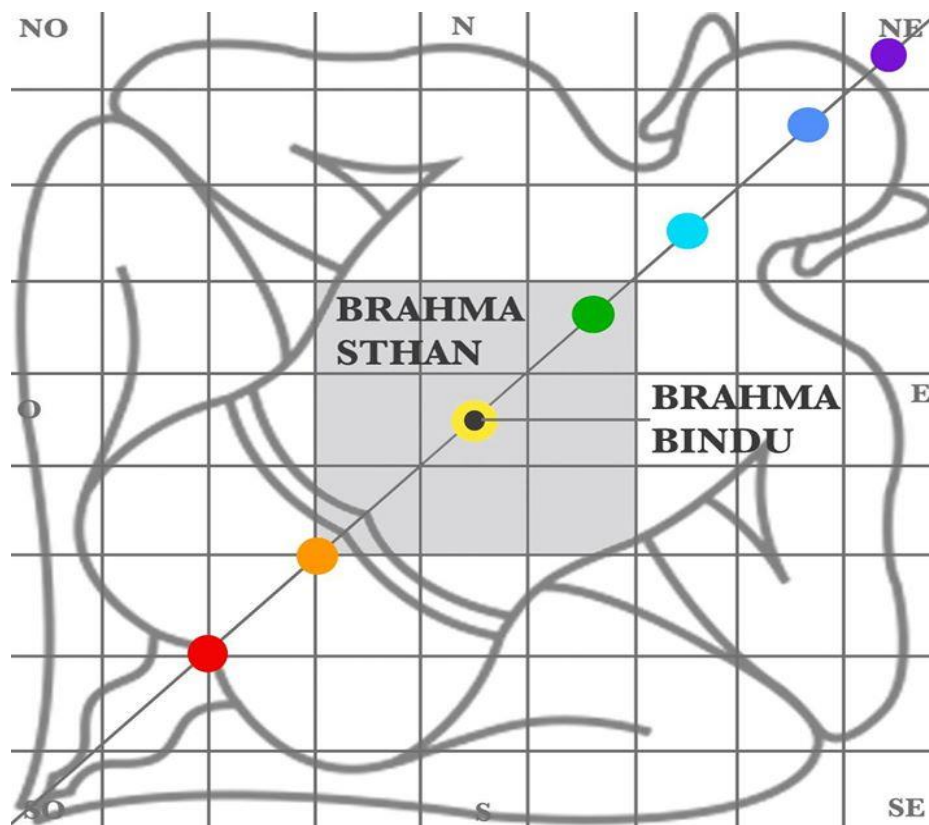
The Hindu temple is a feast of a variety of visual aspects, and wherever one engages one of them, entering a doorway, circumambulating or approaching the inner sanctuary or worshipping there— one is accessing an aspect of the whole.

The rules of Vastu-shastra render beauty, structural stability and quality of spaces by virtue of light, sound and volume management. They also evoke in the devotee an attuning of his person to its structure and ambience.

Hindu Temples take their cue from the structure of Human body. The vast Hindu canonical literature on Agamic texts, Devalaya Vastu (Temple Vastu astrology) and sacred geography describe the temple as a cosmic man, the 'Purusha' (cosmic man). Before we proceed further, let us briefly discuss the concept of the Vastu Purusha Mandala.

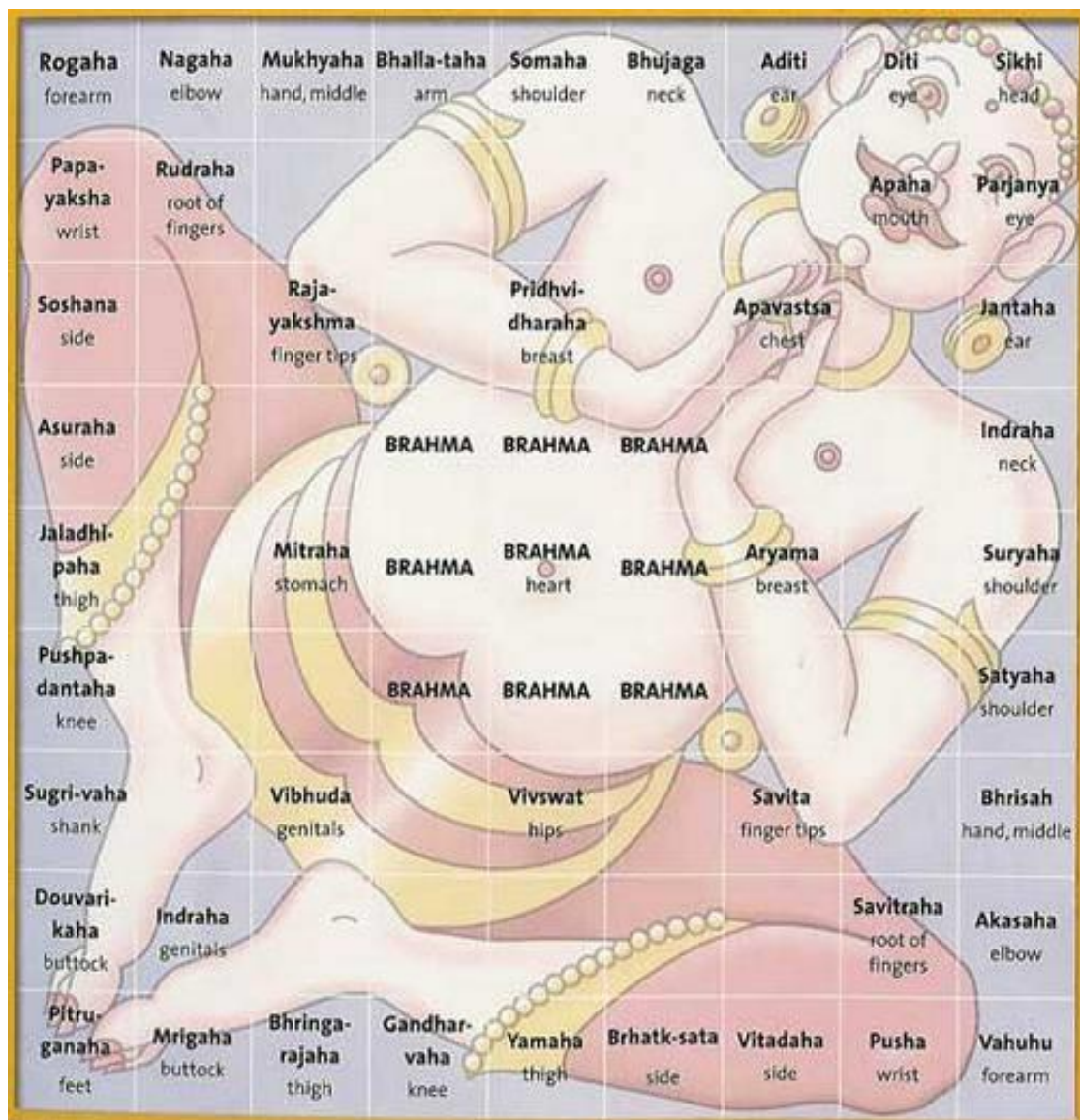
The faith that Earth is a living organism, throbbing with life and energy; is fundamental to the Vastu Shastra. That living energy is symbolized as a person; he is the Vastu Purusha. The site for the proposed construction is his field; Vastu Purusha Mandala. In fact the Vastu Purusha Mandala, the site plan, is his body; and it is treated as such.

His height extends from the South West corner (pitrah) to the North East corner (Agni). The Vastu Purusha Mandala also depicts the origin of the effects on the human body. All symbolisms flow from these visualizations.



Purusha means ‘person’ literally and refers to Universal Man. Purusha is the body of god incarnated in the ground of existence, divided within the myriad forms. He is also that fragmented body simultaneously sacrificed for the restoration of unity.

Vastu Purusha is associated with the Earth and its movable and immovable basic elements of nature, such as the earth, water, fire, air and space; just as a human being does. The Vastu purusha mandala is in some ways a development of the four pointed or cornered earth mandala having astronomical reference points. Further, the Vastu Purusha Mandala is also the cosmos in miniature; and the texts believe “what obtains in a microcosm, obtains in macrocosm too (yatha pinde thatha brahmande).”



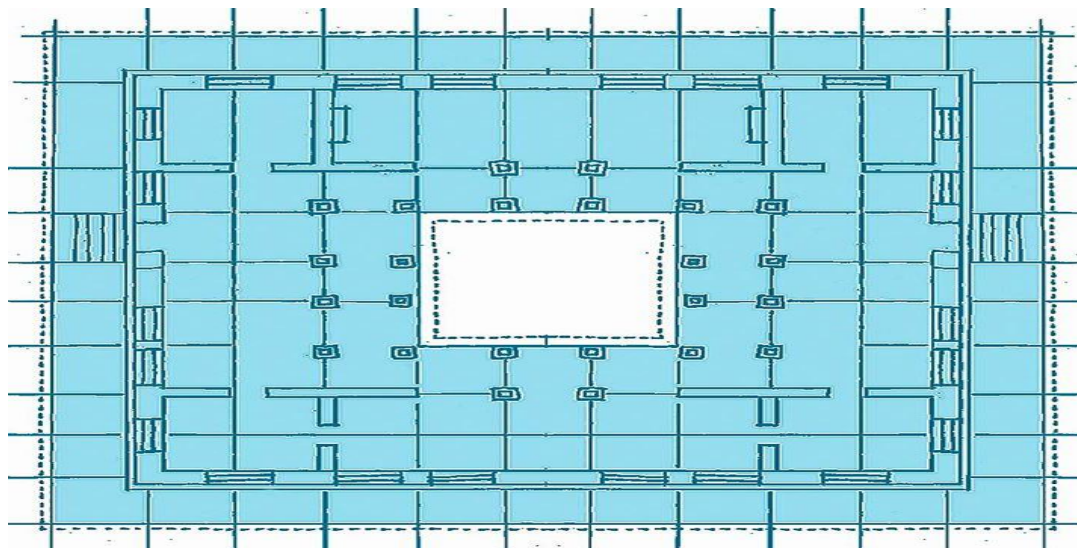
The science of Vastu is believed as part of the Indian architecture. Vastu Shastra developed during the period of 6000 BC and 3000 BC and the ancient Indian text Mayamatam represents Vastu Purusha as the presiding deity for all land structure meant for temples or houses.

Vastu Purusha Mandala is the metaphysical plan of a temple incorporating course of the heavenly bodies and supernatural forces. This Mandala square is divided into $(8 \times 8 = 64)$ 64 metaphysical grids / modules or pada for temples. (For dwelling places $9 \times 9 = 81$ metaphysical grids / modules or pada).

The Vastu Purusha is visualized as lying with his face and stomach touching the ground; to suggest as if he is carrying the weight of the structure. His head is at North East (ishanya) and his legs are at the South West corner (nairutya).

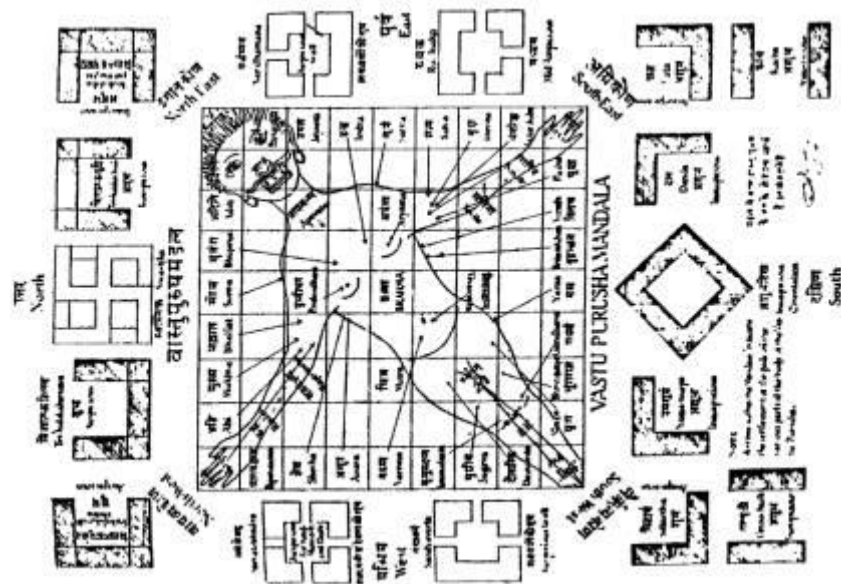
The South West corner (nairutya) where the Vastu Purusha has his legs corresponds to the Muladhara chakra and denotes the earth principle.

Just as the legs support the weight of the body, the base (adhistana) for the muladhara should be stable and strong. Accordingly, the South West portion of the building is the load bearing area; and should be strong enough to support heavy weights. Just as the feet are warm, the South West cell represents warmth and heat; even according to the atmospheric cycles the South West region receives comparativ



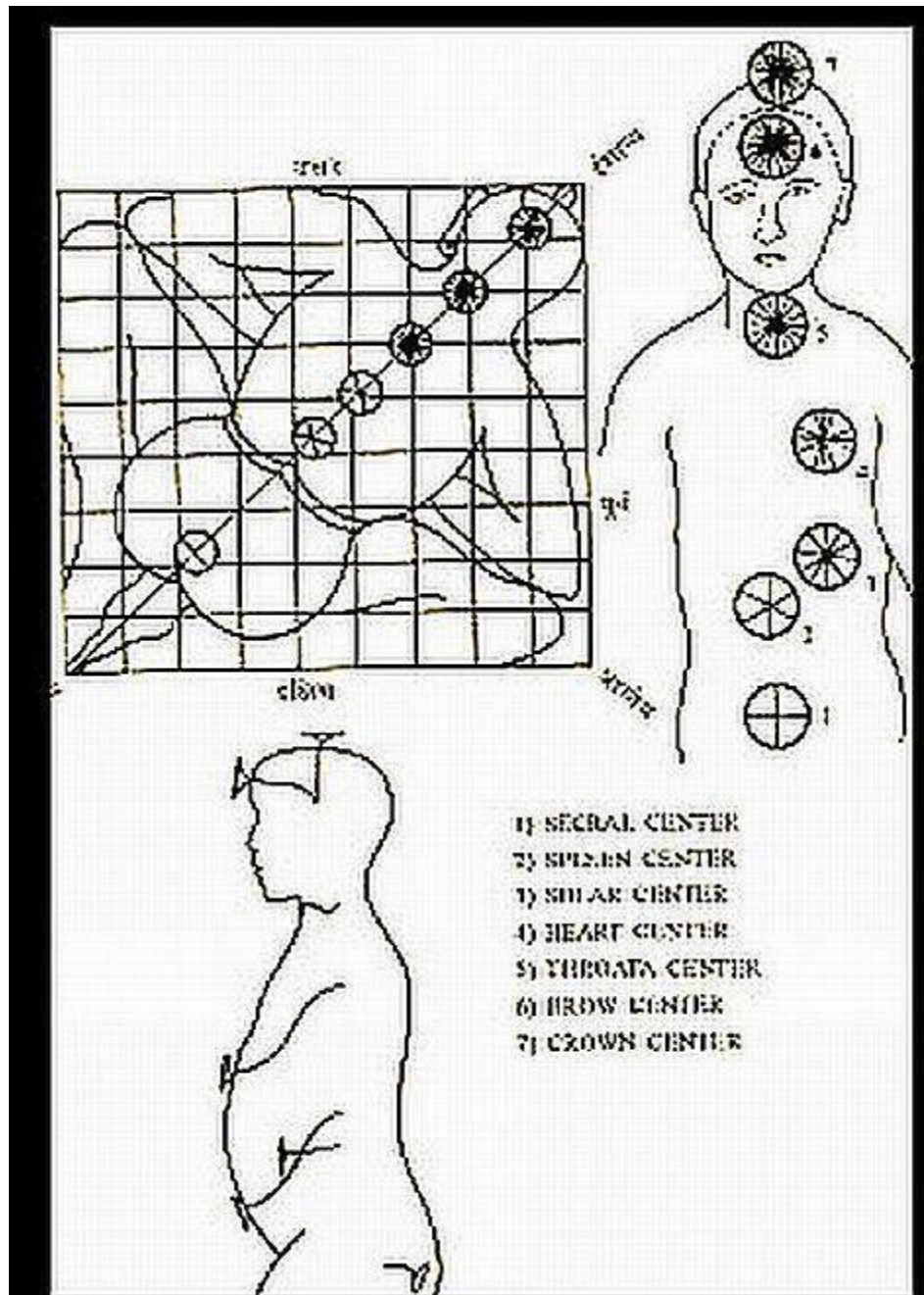
ely more

heat.



Svadhistana chakra is in the lower stomach region near the kidneys. It is related to water principle (apa). On the Vastu Purusha Mandala; it is to the South and to the West. Therefore the wet areas like bathroom etc are recommended in the south or in the west portions of the building. It is for sewerage (utsarjana).

Manipura Chakra is at the navel; and relates to energy or fire or tejas. While in the womb of the mother, the fetus is fed with the essence of food and energy through the umbilical chord connected with its navel. The Vastu Purusha Mandala shows Brahma at the navel of the Vastu Purusha. Further, the lotus is the base (Adhistana) of Brahma. Thus navel connects Brahman with Jiva or panda or life. It is left open and unoccupied. The central portion of the building is to be kept open. It is believed that Vastu Purusha breaths through this open area.



Anahata chakra is near the heart. It is related to vayu air regulated by lungs. The lung region of the Vastu Purusha should be airy. Vishuddaha chakra is near the throat from where the sounds come out and reverberate in space. This region represents Space (Akasha). The word OM is uttered through throat. The echo of that sound vibrates in the hollow of the bone-box of the head and in the space in brain. The head of Vastu Purusha is in the North East corner (Ishanya). The ajna chakra is between the eyebrows. This direction is related to open spaces (akasha).

Atmospherically, North East is cooler; and so should be one's head. The puja room Devagraha is recommended in the North east portion of the house.

The limbs of Vastu Purusha, other than the above are also related to the construction of the building. Liver (yakrt) is towards South East. The cooking area is recommended in South East, because it is related to Agni. The rays of sun reach here first and cleanse the atmosphere.

The North West, vayuvya, is presided over by air vayu. The Organs like spleen, rectum of the Vastu Purusha fall in this portion. The store room is recommended here; perhaps because the spleen in the body does the work of storing and restoring blood.

Directions in Hindu tradition are called as Disa, or Dik. There are four primary directions and a total of 10 directions: East, South-East (Agneya), West, North-West (Vayavya), North, North-East (Isanya), South, South-West (Nauritya), Zenith (Urdhva), Nadir (Adho). There are 'Guardians of the Directions' (Dikpala or Dasa-dikpala) who rule the specific directions of space.

1. North east Direction ruled by Ishanya Shiva (Load of Water) influences balanced thinking
2. East Direction ruled by Indra (Load of Solar) – influences long life
3. South east Direction ruled by Agneya or Agni (Load of Fire) (Energy Generating) influences comfort, peace, prosperity and progeny.
4. South Direction ruled by Yama (Lord of Death or Lord of Death / Damage) yields nothing but mourning, depression and pain. If this direction used properly safeguards from envy of others and cast of all evils.
5. West Direction ruled by Varuna (Load of Water / Lord of Rain) (Neptune) influences reputation, fame, prosperity and success.
6. South west Direction ruled by Nairitya – Deity Lord (Demon) Nairitya influences Protection, strength and stability
7. North west Direction ruled by Vayu or Vayavya (Load of Wind) influences peace

8. North (Kuber) – Deity Lord Kuber or Lord of Wealth (Finance) and keeper of riches influences good strength, better business sufficient in flow of money, education, industrial growth etc.

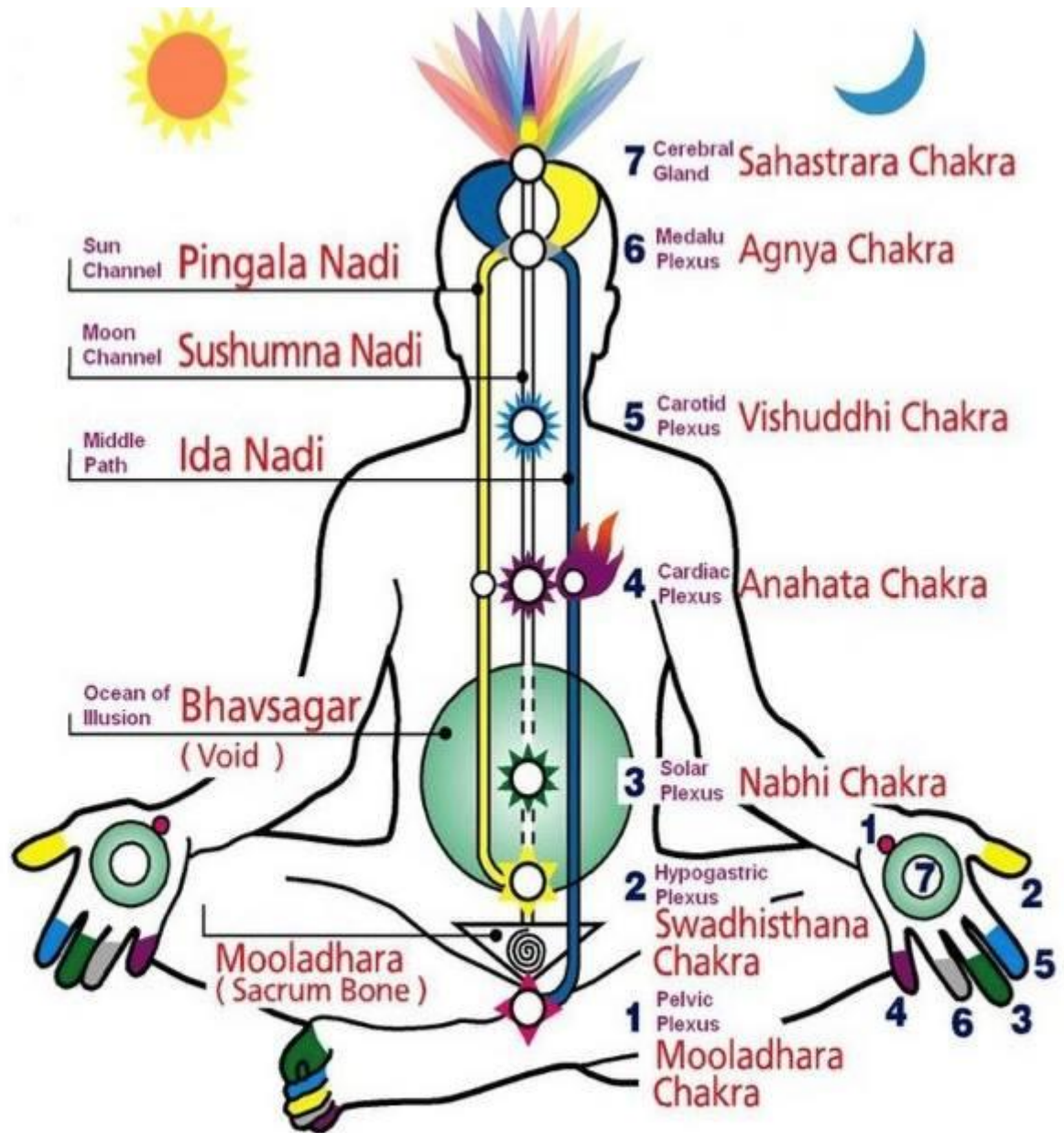
9. Center ruled by Lord Brahma (Creator of Universe)

The ‘Aham Brahmasmi’ (“I am Brahman. I am part of the Universe.”) is the great sayings (Mahavakya) mentioned in Brihadaranyaka Upanishad 1.4.10. of Yajur Veda. The meaning is that ‘Whatever is in the Universe, is present in me’ (and ‘whatever is in me, is part of the Universe’). Indian temples represents the macrocosm of the universe and the structure of the human body represents the microcosm. Veda also says “Yatha Pinde tatha Brahmande”. It means what is going on within human being is the same as what is going on in universe. According to the Tamil Saint Tirumular “our body is a temple”. Here I would like to quote Stella Kramrisch:

“The vastu-purusha-mandala represents the manifest form of the Cosmic Being; upon which the temple is built and in whom the temple rests. The temple is situated in Him, comes from Him, and is a manifestation of Him. The vastu-purusha-mandala is both the body of the Cosmic Being and a bodily device by which those who have the requisite knowledge attain the best results in temple building.” (Stella Kramrisch,; The Hindu Temple, Vol. I)

The concept of chakra features in tantric and yogic traditions of Hinduism. In Yoga, Kundalini Shakti means the ‘coiled power.’ It is compared to a serpent that lies coiled while resting or sleeping.

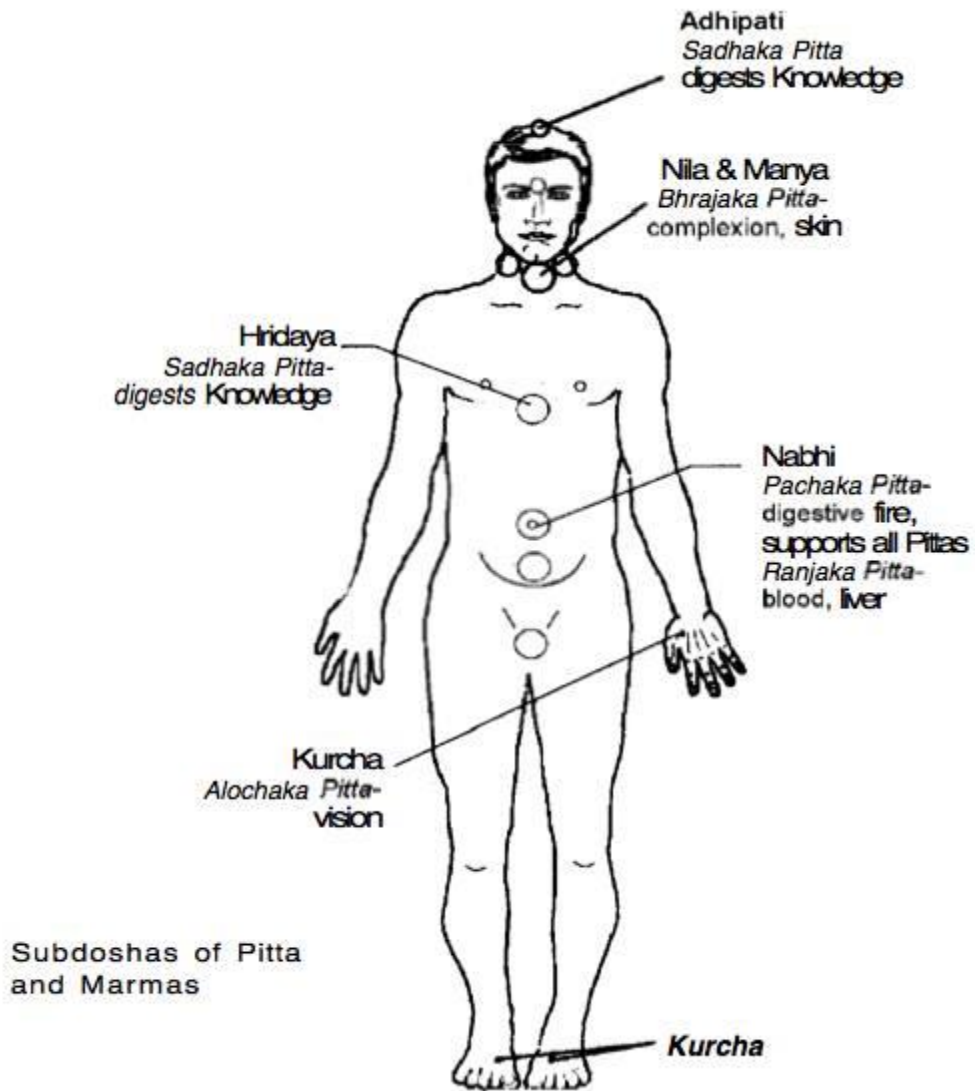
Chakras are vital energy points (Kundalini energy) in the human anatomy, i.e. breath channels, or nadis, and the winds (vayus), that are centres of life force (prana), or vital energy. They include: 1. Muladhara, 2. Swadhisthana, 3. Manipura or manipuraka, 4. Anahata, Anahata-puri, or padma-sundara, 5. Vishuddha or Vishuddhi, 6. Ajna and 7. Sahasrara.

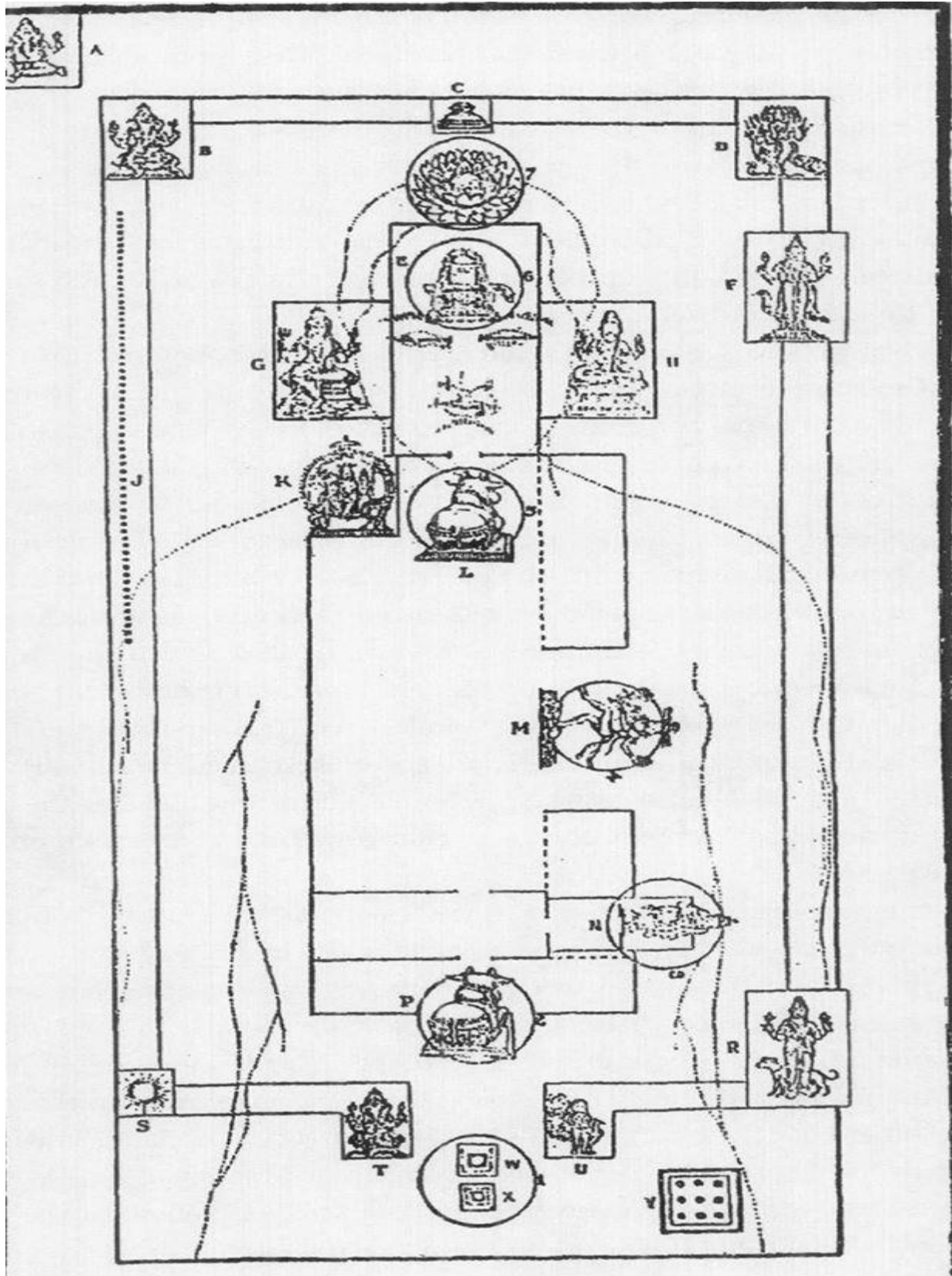


Energy Centres & The Subtle System

1. Muladhara or root chakra located at the base of the spine in the coccygeal region (governs senses). According to Vastu Mandala South-West (Nauritya) – Deity Lord (Demon) Nauritya influences protection, strength and stability.
2. Swadhisthana or Adhishtana at the lower stomach region or the sacrum of the human. Vastu direction West (Varuna) – Lord Varuna (Neptune) Lord of Water or Rain. Formation of temple tank or water bodies in South or West will influence reputation, fame, prosperity and success.

3. Manipura or Manipuraka at the digestive glands (governs digestion through pancreas and adrenal glands) of the human. Digestion involves energy of fire. Female bears navel, womb and umbilical chord. According to Vastu Mandala Lord Brahma or Lord of Creation seated on lotus flower base (Adishtana) rules this point. Cosmic Brahma bridges the cosmic human navel or life. If this point in temple should be left open, the vital energy flows and the wholeness resides with blessings and protection.
4. Anahata, Anahata-puri, or Padma-sundara located at chest (governs lungs, immune system – thymus of human being). As per Vastu Mandala Lord Vayu or Lord of Wind rules this point. This grid relates to air and regulation of air. If this grid is allowed to flow air and the peace and comfort resides.
5. Vishuddha or Vishuddhi located at the throat i.e., thyroid glands (governs sound, speech communication and sense of security of human being). Mantras chanted by cosmic human being bridges with cosmic Ishanya. Cosmic Ishanya is represented in OM, a Pranava Mantra form. According to Vastu Mandala Lord Shiva in Ishanya form rules this grid and represents the space or Akasha. Mantras chanted here will reverberate in space. If left free from obstacles and less occupation or weight, there will be balanced power.
6. Ajna or third eye located at pineal glands or between the eye brows; the two side nadis ‘Ida’ (yoga) and ‘Pingala’ are terminating and merge with the central channel ‘Sushumna’ (governs higher and lower selves and trusting inner guidance of human being). As per Vastu Mandala this direction is also related to open spaces (‘Akasha’) and to the North East corner (Ishanya). The sanctum (Garbagriha or womb chamber) is recommended at this grid, the seat of the divinity.
7. Sahasrara or pure consciousness chakra located at the crown of the head – symbolized by a lotus with one thousand multi-coloured petals. According to Vastu Mandala Anja is the sanctum. The vimanam and shikara forms the space element and the currents of life ascends through the ‘Brahma-randra shila’ or stone slab placed at ‘griva’ (neck) of the vimana. The finial of the shikara of the vimanam is the grid at which unseen sahasrara located.





Source: Hindu Temple vol 1. by Stella Kramrisch

The picture shown here is reproduced from Hindu Temple vol 1. by Stella Kramrisch demonstrate that how the temple structure can be compared with the human body. It is apt to quote the Sanskrit sloka from “Viswakarmyam Vastu Shastra”:

“Garba Gruha Sirahapoktam antaraalam Galamthatha Ardha Mandapam Hridayasthanam Kuchisthanam Mandapomahan Medhrasthaneshu Dwajasthambam Praakaram Janjuangeecha Gopuram Paadayosketha Paadasya Angula Pokthaha Gopuram Sthupasthatha Yevam Devaalayam angamuchyathe”

Meaning: Garba-griham (main sanctum) is equated with human head; antarala (vestibule) is equated with human neck; ardha – mandapam (half-hall) is compared with human chest; maha – mandapam (main hall) is equated with the stomach; flag-post is viewed along with human male organ;and gopuram or temple gateway tower is viewed along with human feet.

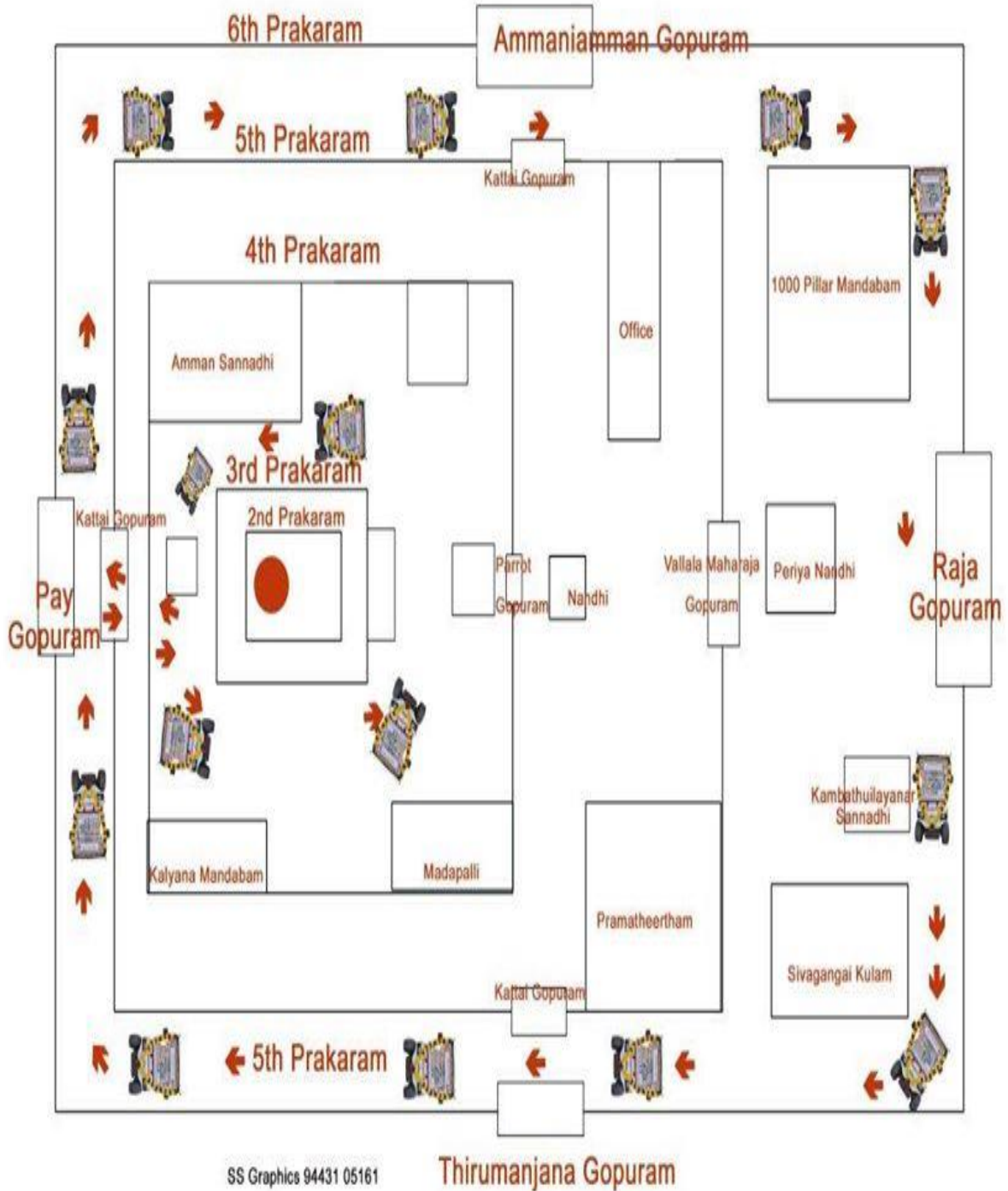
Symbolism of the temple

A Temple is a huge symbolism; it involves a multiple sets of ideas and imagery. See opp. Page: The temple is seen as a link between man and god; and between the actual and the ideal. As such it has got to be symbolic. A temple usually called Devalaya, the abode of God, is also referred to as Prasada meaning a palace with very pleasing aspects. Vimana is another term that denotes temple in general and the Sanctum and its dome, in particular. Thirtha, a place of pilgrimage is it's another name.



Arulmigu Arunachaleswarar Thirukoil Thiruvannamalai

Battery Car Route



The symbolisms of the temple are conceived in several layers. One; the temple complex, at large, is compared to the human body in which the god resides. And, the other is the symbolisms associated with Vimana the temple per se, which also is looked upon as the body of the deity. And the other is its comparison to Sri Chakra.



Sri Chakra

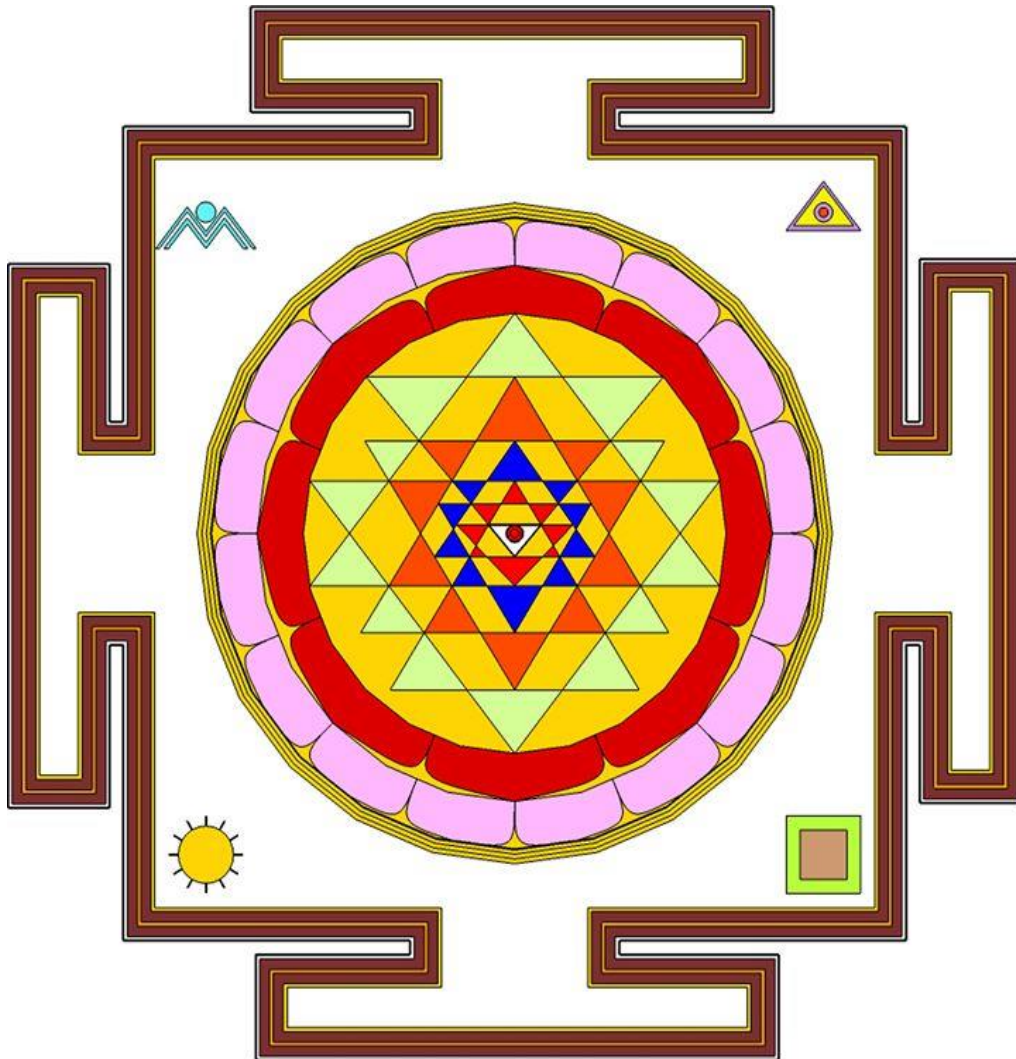
बिन्दु-त्रिकोण वसुकोण दशारयुग्ममन्त्रश्च नागदलसंयुत षोडशारम् ।
वृत्तत्रयं च धरणीसदनत्रयं श्रीचक्रमेतदुदितं परदेवतायाः ॥

The point, the triangle, the eight-cornered figure, the two ten-edged figures, the 14- cornered figure, eight petals, 16 petals, the three circles and the three squares - This is called the Sri Chakra of the Supreme Deity.

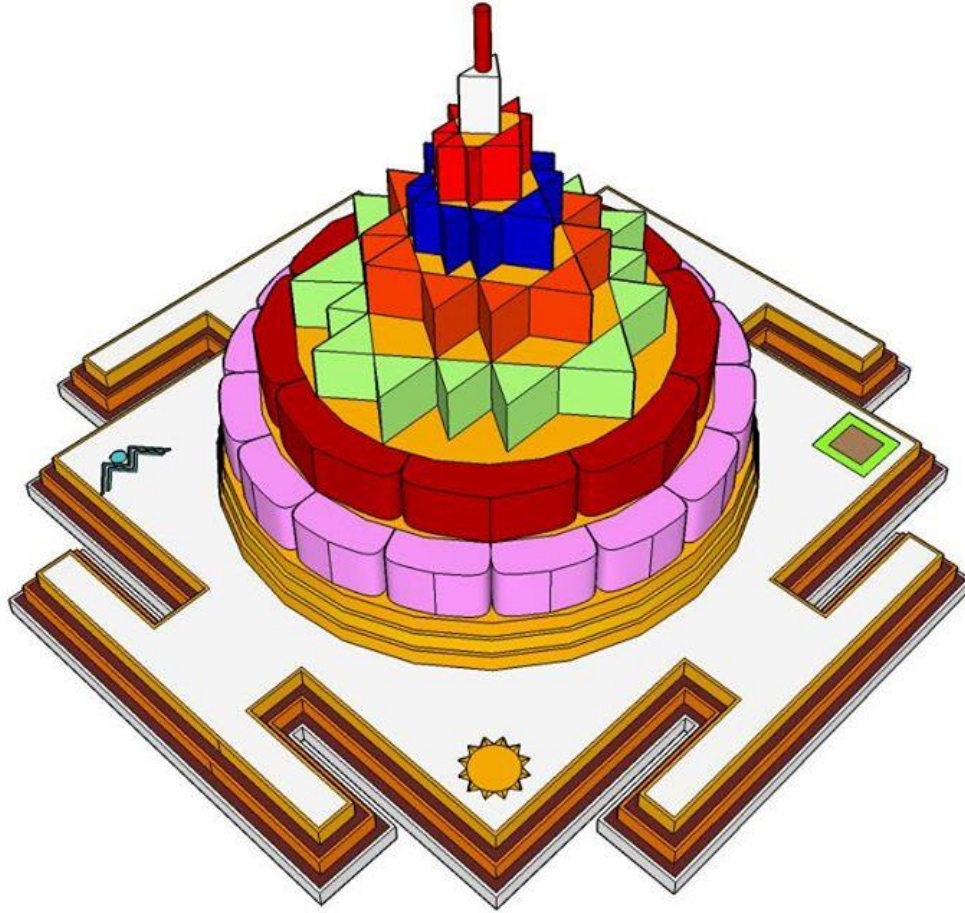
Let's start with the temple complex being looked upon as a representation of Sri Chakra.

At the centre of the temple is the image of divinity and its purity that generations after generations have revered and venerated. That image residing at the heart of the temple is its life; and is its reason. One can think of an icon without a temple; but it is impossible to think of a temple without an icon of the divinity. The very purpose of a temple is its icon. And, therefore is the most important structure of the temple is the Garbagriha where the icon resides.

In fact, the entire temple is conceived as the manifestation or the outgrowth of the icon. And, very often, the ground-plan of a temple is a mandala. Just as the Sri Chakra is the unfolding of the Bindu at its centre, the temple is the outpouring or the expansion of the deity residing in Brahmasthana at the centre.



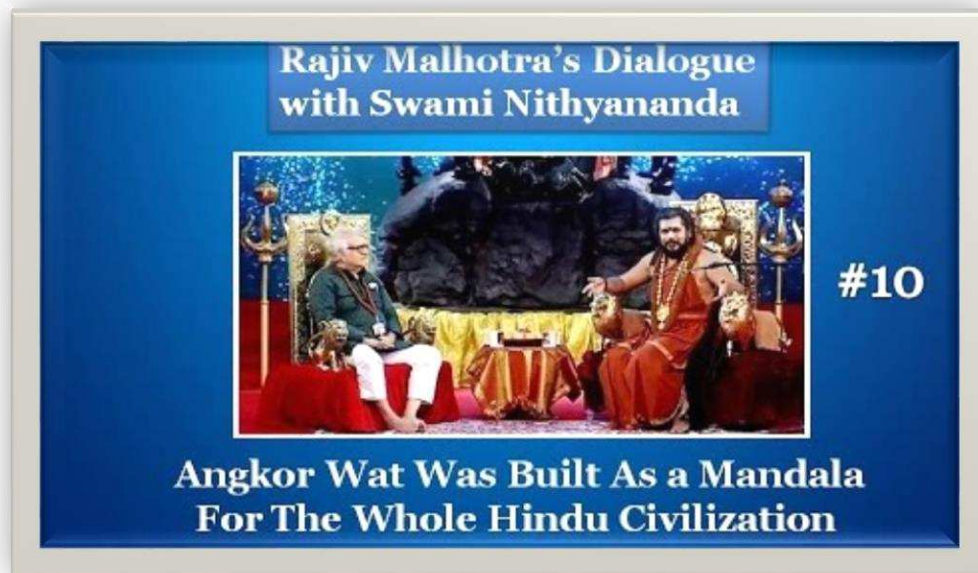
The temple as also the Sri Chakra employs the imagery of an all – enveloping space and time continuum issuing out of the womb. In the case of Sri Chakra the Bindu is the dimension-less and therefore imperceptible source of energy. The idol, the Vighraha, in the Garbagriha represents the manifestation of that imperceptible energy or principle; and it radiates that energy.



The devotee- both at the temple and in Sri Chakra- moves from the gross to the subtle. In the temple, the devotee proceeds from the outer structures towards the deity in the inner sanctum, which compares to the Bindu in the Chakra. The Sri Chakra upasaka too proceeds from the outer Avarana (enclosure) pass through circuitous routes and successive stages to reach the Bindu at the centre of the Chakra, representing the sole creative principle. Similarly the devotee who enters the temple through the gateway below the Gopura (feet of the Lord) passes through several gates, courtyards and prakaras, and submits himself to the Lord residing in the serenity of garbhagrha, the very hearts of the temple, the very representation of One cosmic Principle.

CHAPTER IX

Temple Gopuram as Cosmos & spiritual light house



Although the mandala is a map the cosmos, it can also be map of the soul; based on the belief in many traditions that the inner life of the soul mirrors the outer life of the cosmos. This is seen in the earlier example of the Hindu and Buddhist mandala. The outer edge of the mandala typically

represents the beginnings of a person's spiritual journey. The center of the mandala represents the core of reality where a person's spiritual journey culminates. In Hinduism and Buddhism, it culminates in nirvana and the realm of enlightened ones beyond the temporary world or samsara. In Christianity, the center of the mandala would be the place where God dwells and where the traveler finds God and discovers the true meaning of life and becomes what he or she was intended to become.

In early days, Temples served as the major landmarks of the land. A place was recognized either using the palaces or temples. As the palaces were prone for being ruined due to assault, temples served as the chief landmark for the passengers travelling on foot or carriages from afar. It was a beacon- a light house to guide the visitors.

ELEMENTS OF HINDU TEMPLE ARCHITECTURE

It was the later half of the 7th century that the Hindu temple structures of India began to acquire a definite form with consolidation of design structures all over India.

Elements of Hindu temple:

8. 'Ardhamandapa' meaning the front porch or the main entrance of the temple leading to the mandapa. It unites the main sanctuary and the pillared hall of the temple. 'Antarala' meaning the vestibule or the intermediate chamber.
9. 'Garbhagriha' meaning the womb chamber. The shape and the size of the tower vary from region to region. It is the pyramidal or tapering portion of the temple which represents the mythological 'Meru' or the highest mountain peak. 1. 'Sikhara' meaning the tower or the spire. The devotees walk around the deity in clockwise direction as a worship ritual and symbol of respect to the temple god or goddess. There is an enclosed corridor carried around the outside of garbhagriha called the Pradakshina patha' meaning the ambulatory passageway for circumambulation

Garbhagriha (cella or inner chamber). the lower portion inside the Vimana is called Shikhara and upper as the Vimana is called as the Sikhara. The visitors are not allowed inside the chamber. The chamber is mostly square in plan and is entered by a doorway on its eastern side. It is nucleus and the innermost chamber of the temple where the image or idol of the deity is placed.

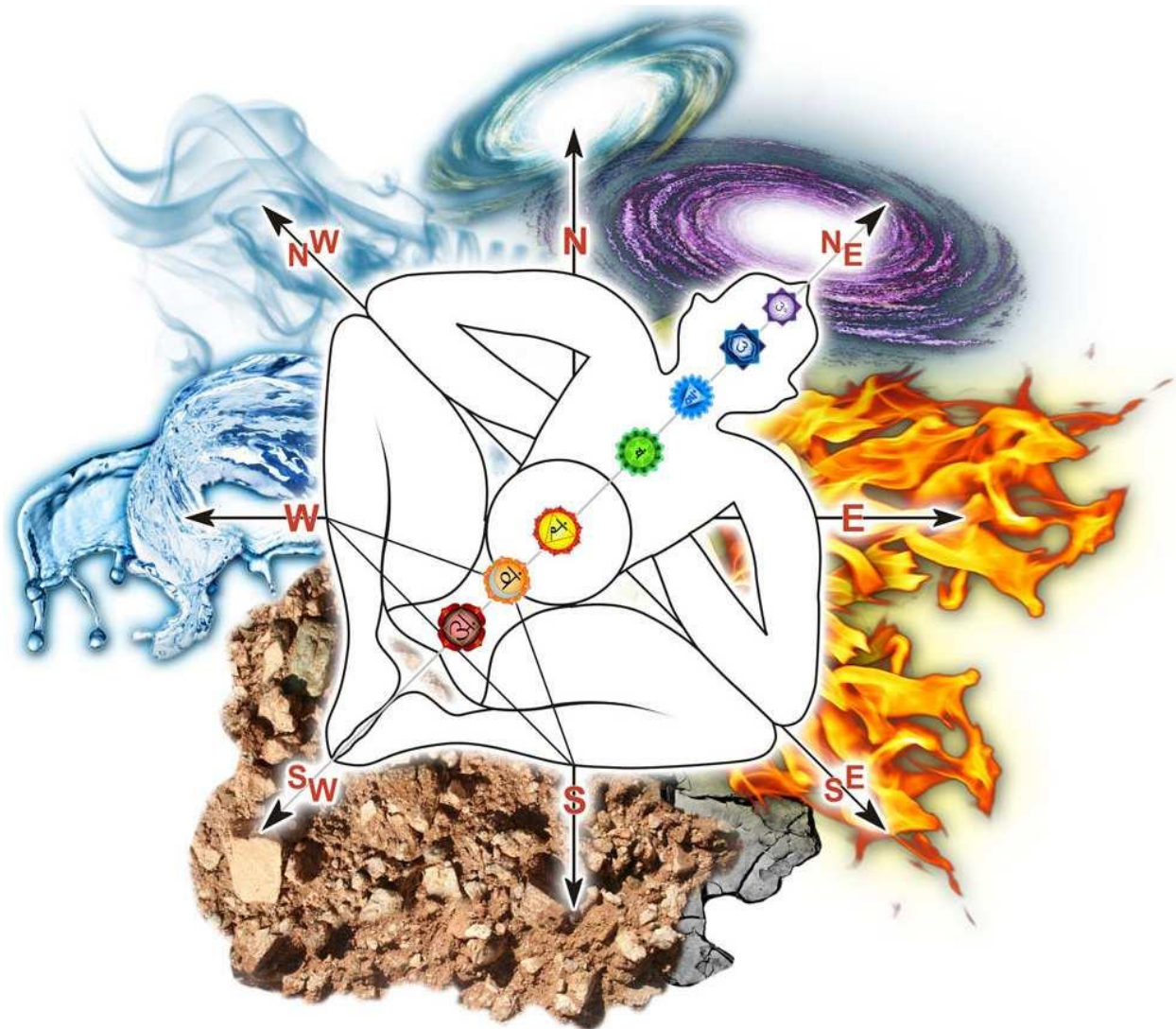
10. 'Gopurams' meaning the monumental and ornate tower at the entrance of the temple complex, specially found in south India
11. 'Mandapa', is the pillared hall in front of the garbhagriha, for the assembly of the devotees. In some of the earlier temples the mandapa was an isolated and separate structure from the sanctuary known as 'Natamandira' meaning temple hall of dancing, where in olden days ritual of music and dance was performed. It is used by the devotees to sit, pray, chant, meditate and watch the priests performing the rituals.
12. The Amalaka the fluted disc like stone placed at the apex of the sikhara.
13. 'Toranas', the typical gateway of the temple mostly found in north Indian temple
14. 'Pitha', the plinth or the platform of the temple

In order to make easy the roaming folk to recognize the locations easily, the Gopuram's of the temples had to be built elevated. That tiled way for the elevated Gopuram's. By way of seeing the Gopuram's form expanse, passengers planned the approximate distance of their target from their location. Gopuram's were built extremely high to serve as landmarks as well as for traveler distance's.

Additionally, temples served as the main protection for travelers. When people travel between places, they stay at the temple building to take rest. Before they commence the new part of their journey, they would respect God and begin.

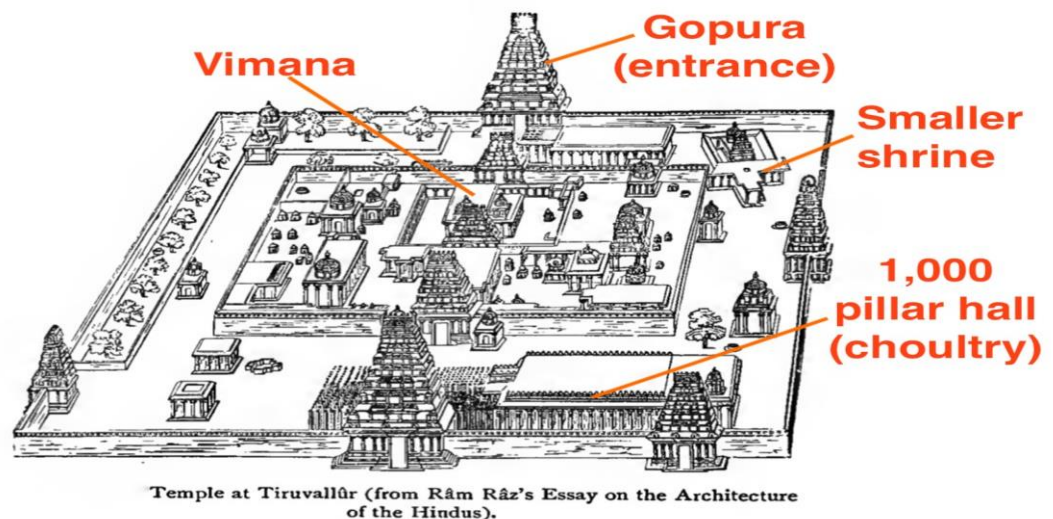
Representatively, the **Temple Gopuram** or the access to the temple represents the feet of the divinity. A devotee bows at the feet of the Lord at the entry as he steps into the temple and proceed towards the chamber, leaving behind the world of contradiction. A *Gopura* is usually constructed with an enormous stone base and a superstructure of brick and support. It is rectangular in sketch and topped by a barrel-vault roof crowned with a row of finials. When viewed from apex, the Gopura too resembles a mandala; with sculptures and carvings of Yalis and mythological animals to be found in the outer enclosed space. Humans and divine beings are in the central enclosures. The crest of the *Gopura*, the *Kalasha*, is at the centre of the *Mandala*. These sculptures follow a selection of themes resulting from the Hindu mythology, mainly those associated with the presiding idol of the temple where the *gopuram* is positioned. Gopuras come into view to have inclined revision in the temple plan and outline. The spaces just about the

shrine became hierarchical; the further the space was from the central shrine, the lesser was its distinction. The farthest ring had buildings of a more practical or a secular nature – shops, dormitories, sheds, workshops etc., thus transforming the temple from a merely place of worship to the center of a vibrant alive city.



A **mandala** (emphasis on first syllable; Sanskrit मण्डल, maṇḍala – literally "circle") is a geometric configuration of symbols. In various spiritual traditions, mandalas may be employed for focusing attention of practitioners and adepts, as a spiritual guidance tool, for establishing a sacred space and as an aid to meditation and trance induction. In the Eastern religions of Hinduism, Buddhism, Jainism and Shintoism it is used as a map representing deities, or specially in the case of Shintoism, paradises, kami or actual shrines.

In New Age, the mandala is a diagram, chart or geometric pattern that represents the cosmos metaphysically or symbolically; a time-microcosm of the universe, but it originally meant to represent wholeness and a model for the organizational structure of life itself, a cosmic diagram that shows the relation to the infinite and the world that extends beyond and within minds and bodies.



MANDALA:

Religious meaning

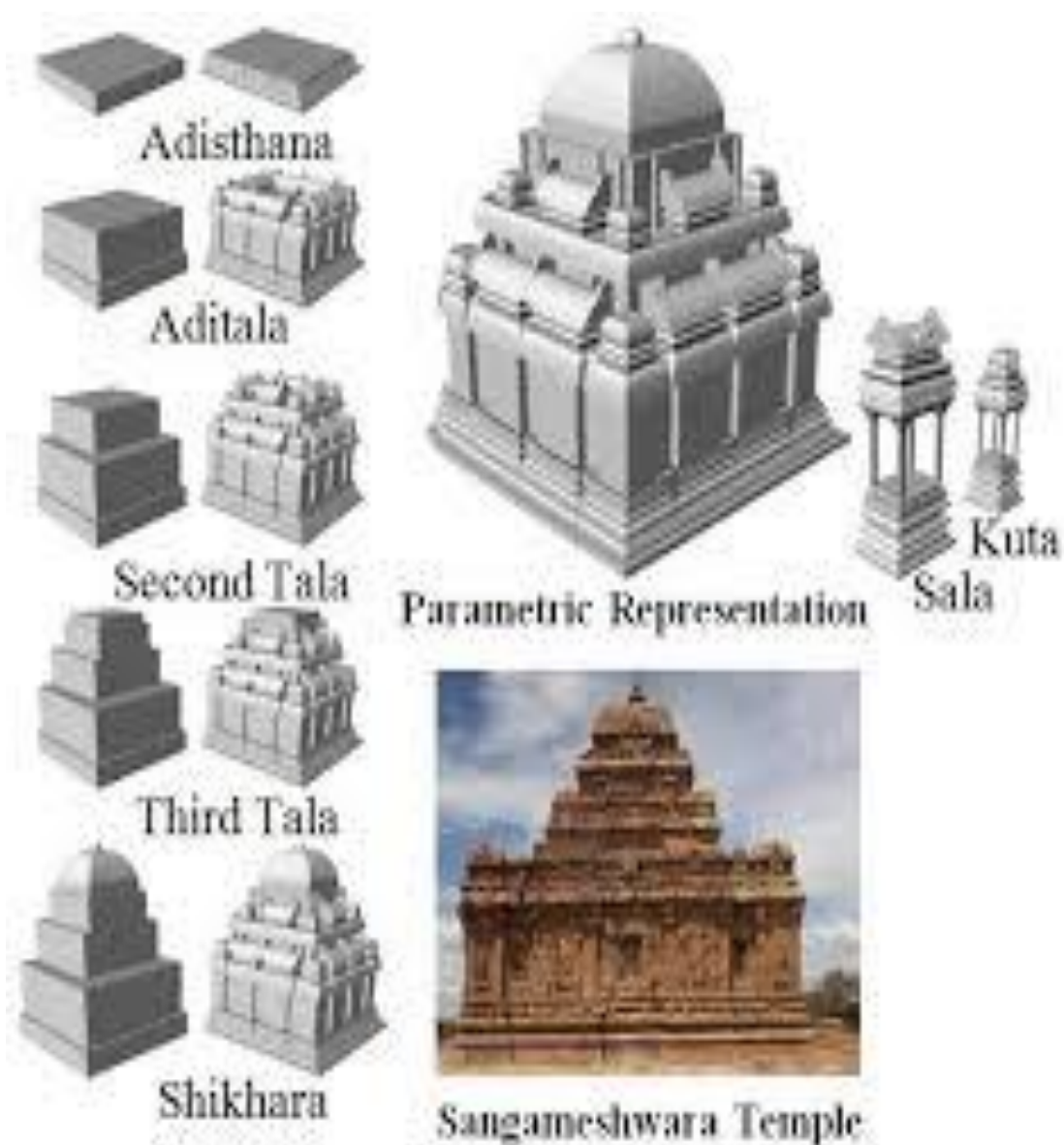
In Hinduism, a basic mandala, also called a yantra, takes the form of a square with four gates containing a circle with a center point. Each gate is in the general shape of a T. Mandalas often have radial balance.

A yantra is similar to a mandala, usually smaller and using a more limited colour palette. It may be a two- or three-dimensional geometric composition used in sadhanas, puja or meditative rituals, and may incorporate a mantra into its design. It is considered to represent the abode of the deity. Each *yantra* is unique and calls the deity into the presence of the practitioner through the elaborate symbolic geometric designs. According to one scholar, "Yantras function as revelatory symbols of cosmic truths and as instructional charts of the spiritual aspect of human experience"

Many situate *yantras* as central focus points for Hindu tantric practice. *Yantras* are not representations, but are lived, experiential, nondual realities. As Khanna describes:

Despite its cosmic meanings a *yantra* is a reality lived. Because of the relationship that exists in the Tantras between the outer world (the macrocosm) and man's inner world (the microcosm), every symbol in a *yantra* is ambivalently resonant in inner–outer synthesis, and is associated with the subtle body and aspects of human consciousness.^[6]

The term 'mandala' appears in the Rigveda as the name of the sections of the work, and Vedic rituals use mandalas such as the Navagraha mandala to this day.



The science behind these constructions is that, the temple architecture gives cosmic force to the main idol in the Garbha Griha. Firstly, the Juathaskambam acts like an antenna and receives the cosmic force from the space and through a subversive channel it is linked to the main idol in the Garbha-graha. The cosmic force continuously flows through the Jathuskambam to the statue and energizes it. Secondly, the celestial power fetched through the field gives the idol effulgence and metaphysical powers. The cosmic-force is additionally maintained by noise waves (Vedic chants – Read about the Significance of Chanting) and the pyramid like tomb. The pyramid like construction helps to intensify and protect the cosmic force. These are the reasons for anybody to feel a positive energy, goodness, serenity or divinity when we approach the interior sanctum.

The copper plate has the propensity to suck part the Ether when that penetrates from the copper and the Herbal resulting in powerful atomic force that penetrates through the skin to heal the human, and that's why the copper plate is put on the temple tower.

The idol is washed with various materials (milk, sandal paste, oil) to preserve the idols. The idol is adorned with flowers and ornaments for mental and visual boost. But the diverse postures of the idol (sitting/standing, number of hands, weapons they hold) do have meaning in emitting the cosmic force.

Thus the temples serve up as the scientific room to receive the shower of cosmic force or God's blessing.

From my understanding Temple Gopurams are an important part of any Hindu temples and there are specific reasons for their existence. They are:

- 1) Temple Gopurams are built to receive the positive energy from the universe. Cosmic rays will be received by the Gopuram and it will be passed to the statue in the temple.
- 2) Gopuram will also receive the energy from thunder/lightning and pass it to the ground. So it acted as a layer of protection for the temple and the nearby areas.
- 3) Temple Gopuram were built largely to depict the culture and art of ancient people

- 4) It also used to act as a landmark in olden days to find out the cities, way to different places.
- 5) In olden days , kings built temples in order to give job to the people of the country and along with that future generations will come to know the architectural talents that ancient people had.
- 6) The small carvings and statues in temple gopuram depict the story of the god and also will show life lessons.

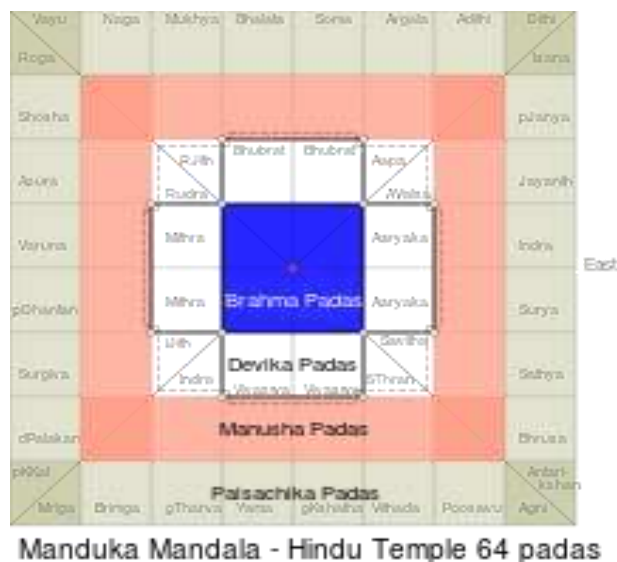
MANDALA AND HINDU TEMPLE ARCHITECTURE

Although there have been various arguments by authors of Indian temple architecture like Stella Kramrisch and Michael W. Meister about the applicability of the Vastu Purusha Mandala as a governing device for temple architecture, it is safe to say that for formulating the layout of the temple, the Vastu Purusha Mandala has been an imperative tool. Though the 8 x 8 grid or the Manduka Vastu Mandala has been used in various temples of Indian architecture, it is to be noted that regional differences have played a major influence on the workability of the mandala design throughout India. Customarily, mandalas were spaces for the symbolic consciousness of universal theories which help in the awakening of the individual psyche. The mandalas can be thought of as diagrams that function as a cue to reach a contemplational state which is the primary aim of the tradition. The form of the temples that are based on the regulating lines of the mandala were meant to create spaces that bring about a “physical and spatial” communion between God and man.¹

The Vastu Purusha Mandala contains a minimum of nine sections signifying the directions north, south, east, west, northeast, northwest, southeast, southwest and the centre represented as square grids. In the Vastu Purusha Mandala, the Purusha’s head is located in the northeast direction and this is considered utmost sacred. In the southwest are his feet and his knees and elbows in the northwest and southeast. Kept open and clear in the centre part of the diagram are his main organs and his torso. Starting from a single undivided square of 1 x 1 there are grid patterns ranging up to 32 x 32 thus making it 1024 sections. Architecturally, the adaptation of the Vastu Purusha Mandala has been seen in the design of houses, palaces, temples and even cities.

Integrating it into the design brings a certain amount of order in the design. Here, the squares are assumed as cubes of architectural spaces.

The five elements of earth, water, fire, air and space correspond with specific sections of the Vastu Purusha Mandala. The south-west direction is associated with the element of earth(Bhumi); south-east with the elements of fire (Agni); north-east with the element of water (Jala); north-west with the element of air (Vayu) and the centre space with the element of space (Akasha).²



Indian temples are microcosm of Cosmos, acting as a connecting bridge between physical world and divine world through their proportional arrangement. Mandapa, which were entrance porches in the beginning became an integral part of the temple plan in providing additional functions and in form providing an expression of cosmos especially in elevation. Ashapuri temples analyzed here, corresponds to Nagara temple proportions varying in proportions as they belong to two different styles of nagara Architecture. From the study of Adam Hardy it is said that they possessed temples of different styles in Nagara other than these two. The site of Ashapuri seems to be a place for the development of the Nagara school of architecture.

ANGKOR WAT

Angkor Wat was built by the king of the Khmer Empire first as a Hindu, then a Buddhist temple complex. It is known as one of the largest monuments ever built. Hence, this great Buddhist temple provides clear, physical evidence that Hinduism and Buddhism were brought to the region by the Indians, and adopted by early Southeast Asian empires like the Khmer Empire.

The pagodas of Angkor Wat are also a physical depiction of the Hindu concept of Mandala. In addition, the gates of the temple also resemble the gates of the symbol of Mandala. This concept is Hindu in nature and is believed to have been brought to pre-modern Southeast Asia from India. It is probable that these ideas were then "borrowed" by the Khmer Empire, and depicted through its great temple.



Angkor Wat also has a Gopura. A Gopura is a monumental tower often built at the entrance of temples - a distinctive feature of South Indian architecture. The presence of this structure at Angkor Wat indicates that there was Indian influence in the architecture of the Khmer Empire.

In addition, the temple has many bas-reliefs depicting stories from the Indian epics, the Mahabharata and Ramayana. This shows that these stories were clearly influential in early

Southeast Asia as they repeatedly adorn the walls of Angkor Wat, which was seen as a sacred and important place. This demonstrates just how strong Indian influence was in the Khmer Empire.

Furthermore, even though hundreds of years have passed, Angkor Wat is still a national symbol and major source of pride of Cambodia today. The fact that Indianisation of the Khmer Empire from the 7th to 14th century has continued to shape the heritage and identity of modern Cambodia indicates the lasting impact Indianisation had on the region.

Mandala in Meenakshi temple Madurai with biggest GOPURAMs in the world

Temple Structure

The entire structure, when viewed from above, represents a mandala. A mandala is a structure built according to the laws of symmetry and loci. There are various shrines built within the temple complex.

The temple occupies a huge area in the heart of Madurai as it spreads over 14 acres. The temple is enclosed with huge walls, which were built in response to the invasions. Apart from the two main shrines, which are dedicated to Sundareswarar and Meenakshi, the temple has shrines dedicated to various other deities like Ganesha and Murugan. The temple also houses goddesses Lakshmi, Rukmini, and Saraswati.

The temple also has a consecrated pond named 'Porthamarai Kulam.' The term 'Potramarai Kulam' is a literal translation of 'pond with a golden lotus.' The structure of a golden lotus is placed at the center of the pond. It is said that Lord Shiva blessed this pond and declared that no marine life would grow in it. In the Tamil folklore, the pond is believed to be an evaluator for reviewing the worth of any new literature.



Image Credit:

The temple has four main towering gateways (gopurams) that look identical to each other. Apart from the four ‘gopurams,’ the temple also houses many other ‘gopurams’ that serve as gateways to a number of shrines. The temple has a total of 14 towering gateways. Each one of them is a multi-storey structure and displays thousands of mythological stories and several other sculptures. The major ‘gopurams’ of the temple are listed below:

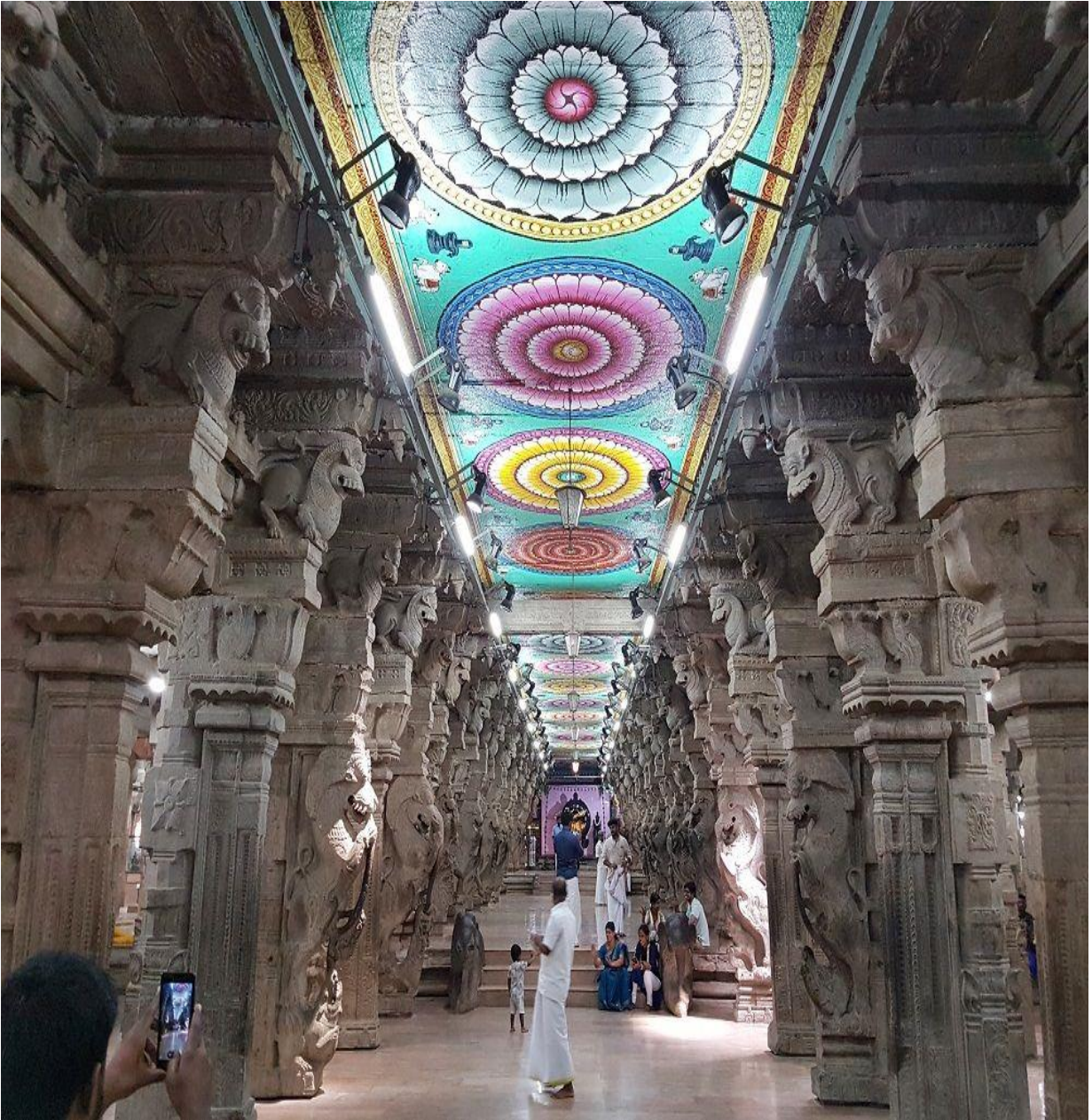
- **Kadaka Gopuram** – This towering gateway leads to the main shrine that houses Goddess Meenakshi. The gateway was rebuilt by Tumpichi Nayakkar during the mid-16th century. The ‘gopuram’ has five storeys.
- **Sundareswarar Shrine Gopuram** – This is the oldest ‘gopuram’ of the temple and was built by Kulasekara Pandya. The ‘gopuram’ serves as a gateway to the Sundareswarar (Lord Shiva) shrine.
- **Chitra Gopuram** – Built by Maravarman Sundara Pandyan II, the gopuram depicts the religious and secular essence of Hinduism.
- **Nadukkattu Gopuram** – Also called as the ‘Idaikattu Gopuram,’ this gateway leads to the Ganesha shrine. The gateway is placed right in between the two main shrines.

- **Mottai Gopuram** – This ‘gopuram’ has fewer stucco images when compared to the other gateways. Interestingly, ‘Mottai gopuram’ had no roof for nearly three centuries.
- **Nayaka Gopuram** – This ‘gopuram’ was built by Visvappa Nayakkar around 1530. The ‘gopuram’ is astonishingly similar to another gateway called ‘Palahai Gopuram.’

The temple also has numerous pillared halls called ‘Mandapams.’ These halls were built by various kings and emperors and they serve as resting places for pilgrims and devotees. Some of the most important ‘mandapams’ are given below:

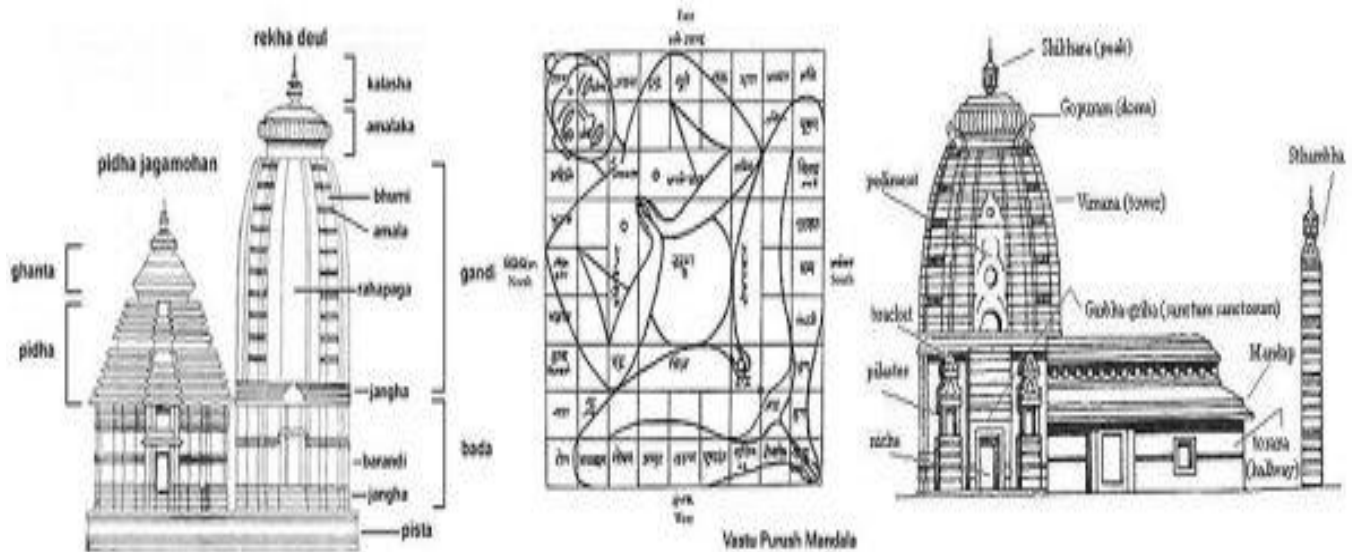
- **Ayirakkal Mandapam** – It literally translates to ‘hall with thousand pillars.’ The hall, which was built by Ariyanatha Mudaliar, is a true spectacle as it is supported by 985 pillars. Each and every pillar is sculpted magnificently and has images of Yali, a mythological creature.
- **Kilikoondur Mandapam** – This ‘mandapam’ was originally built to house hundreds of parrots. The parrots that were kept there in cages were trained to say ‘Meenakshi’. The hall, which is next to the Meenakshi shrine, has sculptures of characters from Mahabharata.
- **Ashta Shakthi Mandapam** – This hall houses the sculptures of eight goddesses. Built by two queens, the hall is placed in between the main ‘gopuram’ and the gateway that leads to the Meenakshi shrine.
- **Nayaka Mandapam** – ‘Nayaka Mandapam’ was built by Chinnappa Nayakkar. The hall is supported by 100 pillars and houses a Nataraja statue.





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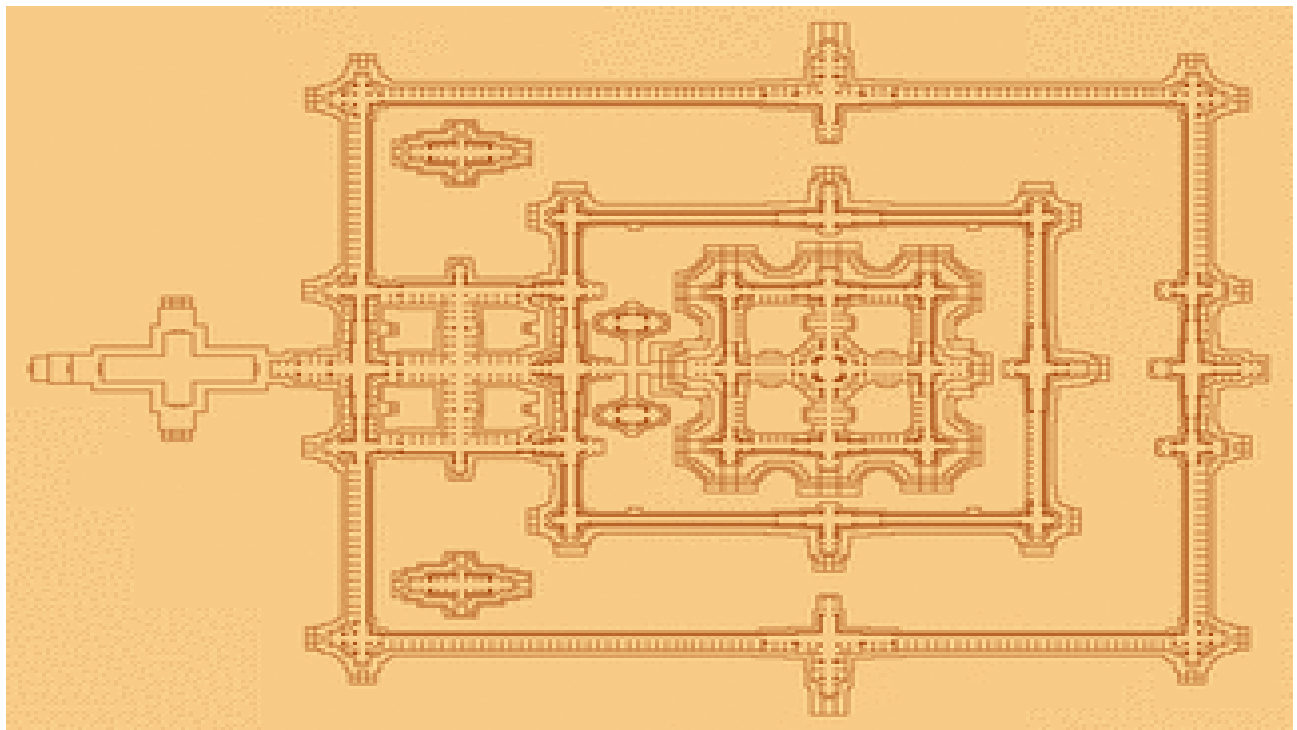
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Note how the architectural layout of the temple greatly resembles the symbol of Mandala. For example, you can spot the building's centre point, as well as the four gates on the outermost wall.

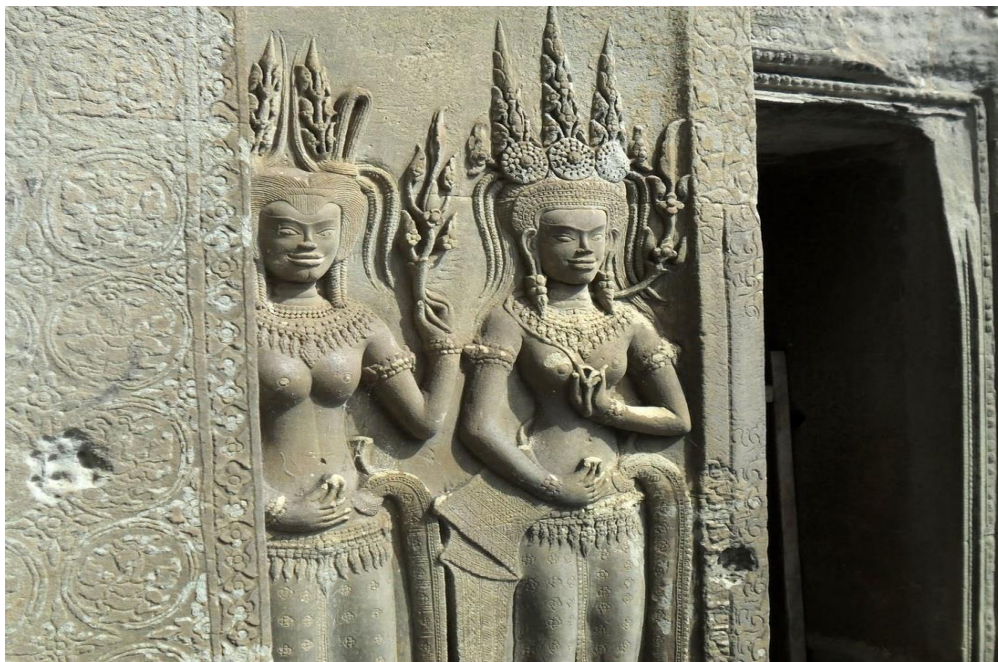


Rough Layout of Angkor Wat



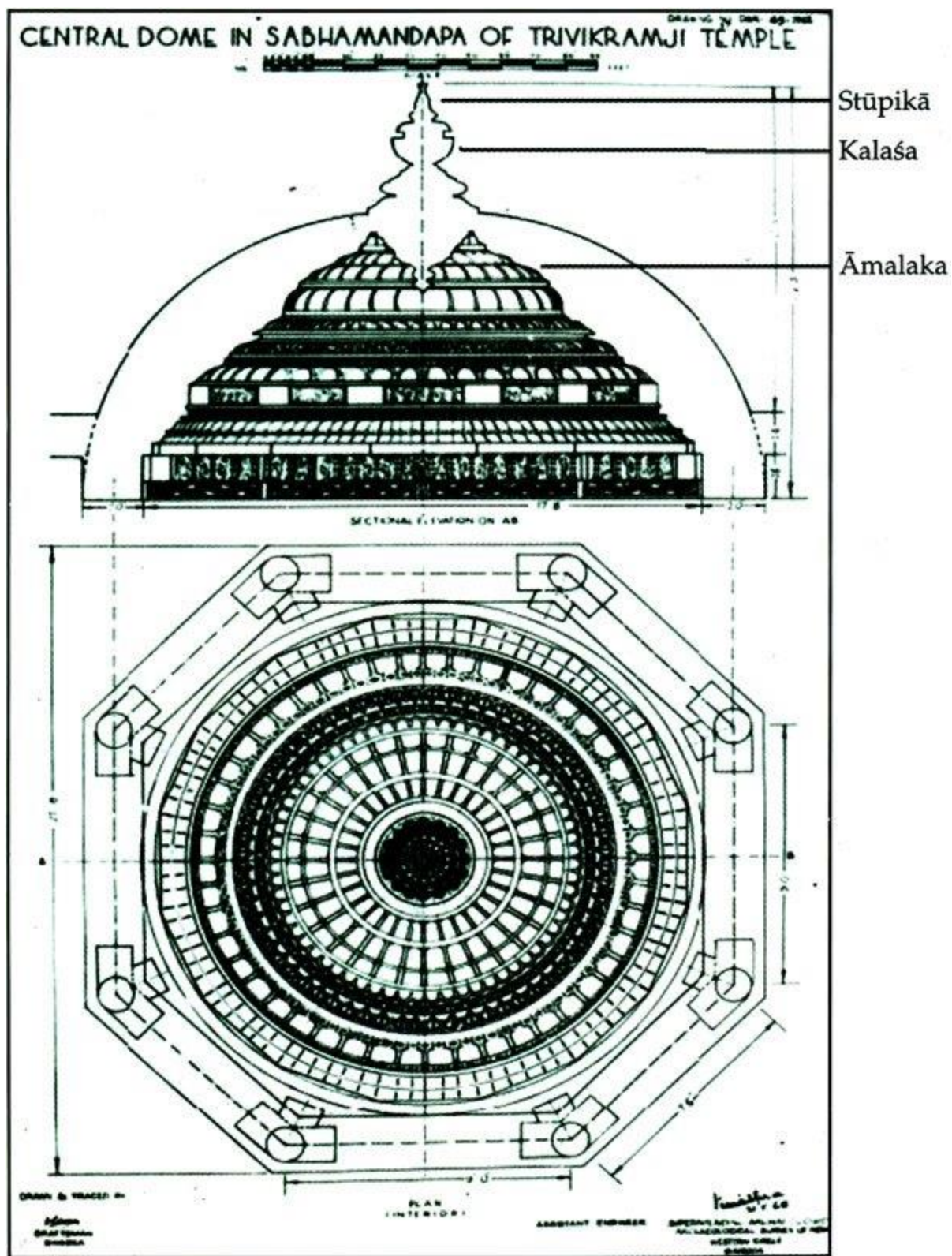


The Third Tier GOPURAM

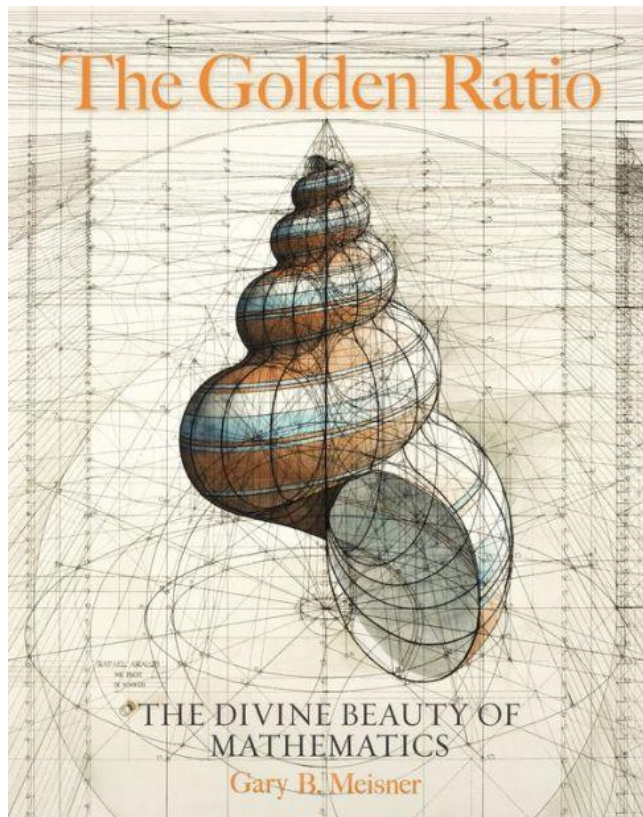
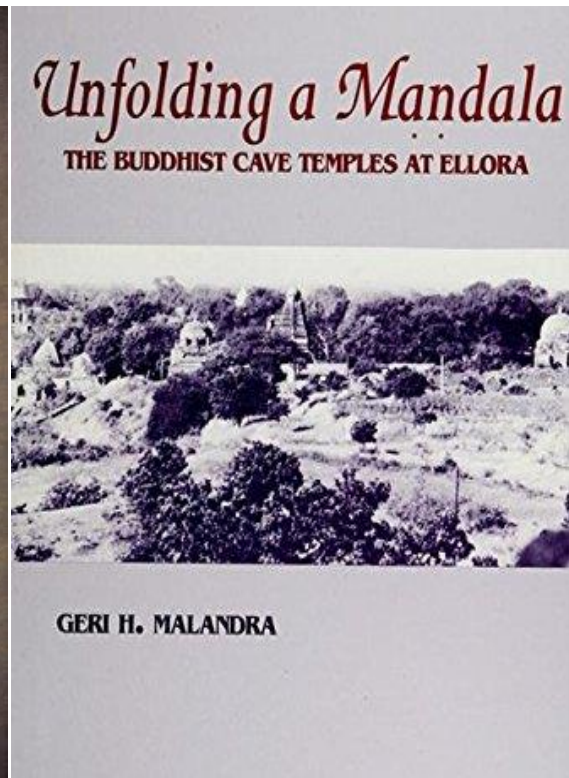
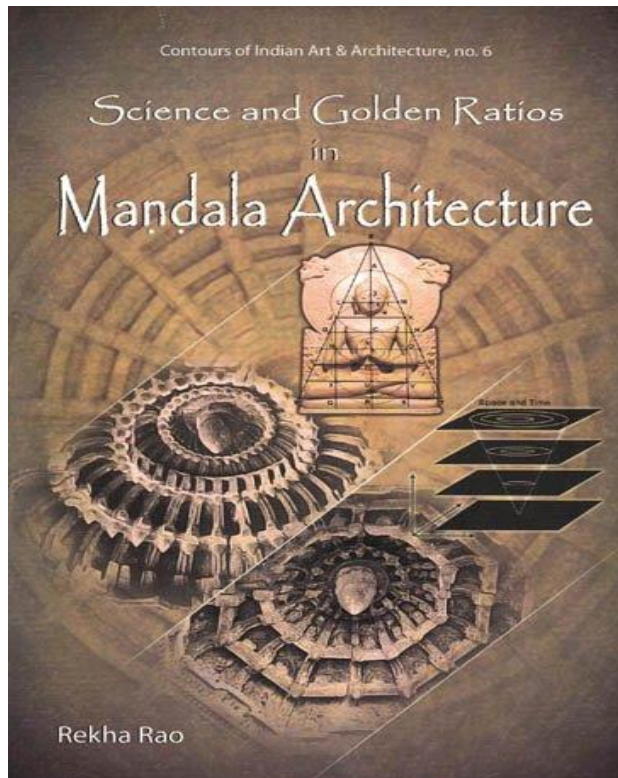


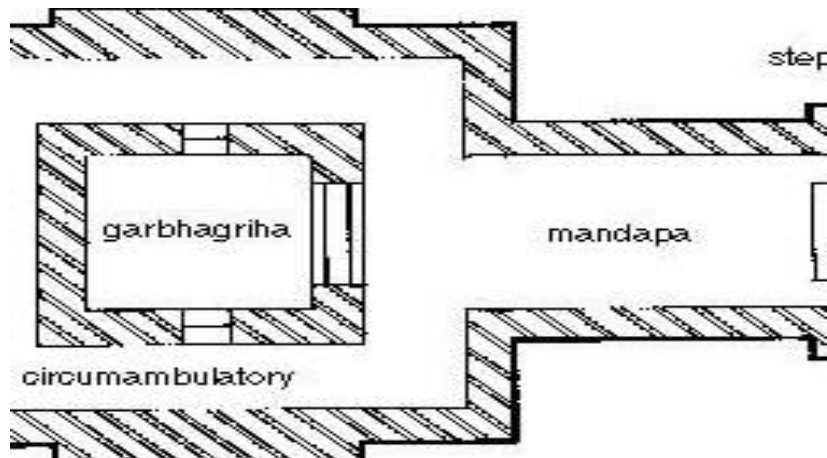
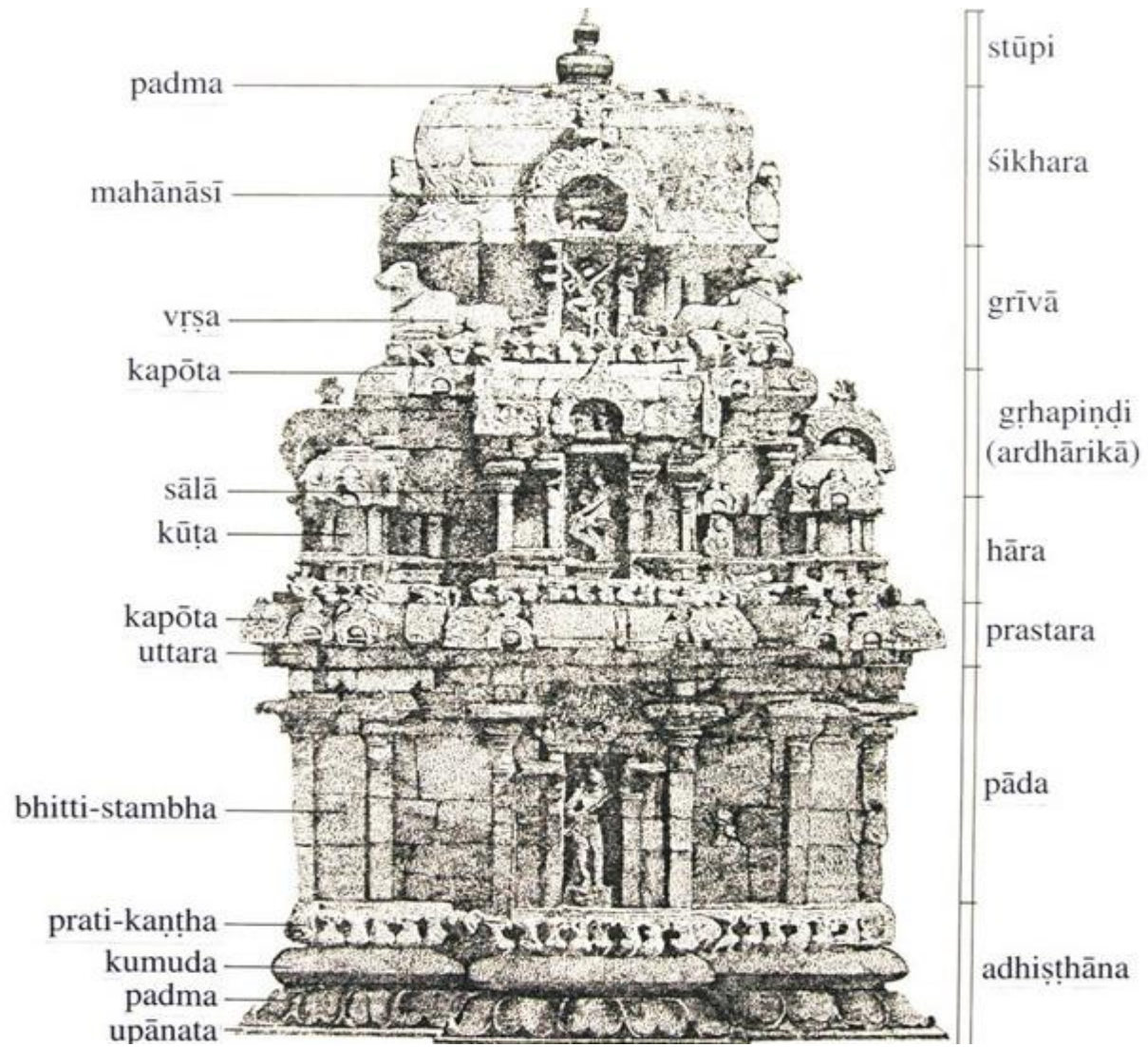


វិចិត្រសាល ប្រើណូលេវី អង្គរ២០១១



Pl. 2: Figure of the plan and cross-section of the *śikhara*, with *stūpikā*.





“The Vastu Purusha Mandala represents the manifest form of the Cosmic Being; upon which the temple is built and in whom the temple rests. The temple is situated in Him, comes from Him, and is a manifestation of Him. The Vastu Purusha Mandala is both the body of the Cosmic Being and a bodily device by which those who have the requisite knowledge attain the best results in temple building.” – Stella Kramrisch ; The Hindu Temple, Vol. I

Vastu Purush Mandala has been in existence for thousands of years, will continue till eternity. It is the fundamental principle which continues to create and run the whole universe - both at the macro and the micro level. If we can decode its secret and follow its eternal principles for construction, we can ensure a life full of health, wealth, peace and prosperity.

The Vastu Purush Mandala is a cosmic geometrical wonder used to design temples amongst other structures. When we observe the energy fields that develop at different stages of a building – starting from the stage of a vacant plot - to the digging of land - to the laying of the foundation - to the completion of the building - and finally to the point when it is inhabited by the people – we unravel the secrets of the Vastu Purusha Mandala.

Image of the Universe: The Vastu Mandala is the omnipresent, omnipotent soul of every building. It is based on the principle that Man and Universe are analogous in their structure and spirit. Vastu Purush Mandala is thus a Yantra or an image of the Universe. Hindus believe that the body is the image of the entire Universe (See figure below). Vastu Purusha Mandala is a combination of 45 Devas and Asuras present in a geometrical figure. The Devas represent our consciousness and the Asuras our ignorance and fear. The war between consciousness and ignorance goes on each moment within all of us. It is not just a Puranic story, it's the reality we live in each moment.

DECODING THE DEVTAS & ASURAS The 45 Energy Fields PADAVINAYASA ModularGrid After Shilanyas and construction of foundation walls, this is the first energy field to develop in the plot.

BRAHMA DEVTAS vs ASURAS THE ETERNAL WAR- Energy Fields Next to Brahma
ARYAMA The Power of Connections VIVASWAN The Power of Revolution or Change

MITRA The Power of Inspiration & Action BHUDHAR The Power of Manifestation DEVA
VITHI

The 8 Energy Fields in the Diagonal Directions NORTH EAST Apaha Apahavatsa
SOUTH WEST Indra Indrajaya SOUTH EAST Savita Savitur NORTH WEST Rudra
Rajyakshma MANUSHYA VITHI

12. NORTH EAST APAHA Ignerates the energies responsible for healing APAHAVATSA
Carries the healing powers to the occupants www.anantvastu.com

13. SOUTH EAST SAVITA Energies that help to initiate any process or action SAVITUR
Energies that give capabilities to continue those actions and overcome all challenges

14. . SOUTH WEST INDRA Energies that establish stability and enhance growth
INDRAJAYA The tools and the channels through which one can achieve growth

15. .NORTH WEST RUDRA Energies responsible for support and ensure flow of activities
and life RAJYAKSHMA Energies which uphold the support and stabilise the mind . The
32 Energy Fields of the Outer Periphery PAISHACHA VITHI . These are also the 32
Possible Entrance Locations . The 32 Energy Fields of the Outer Periphery ADITI Mother
of the Devtas, this energy field provides security and helps one connect with
himself/herself) DITI Mother of the Asuras, this energy field gives the powers of a wider
vision and to see the actual truth of life.SHIKHI Symbolic of a pointed flame, this field
gives the power of ideas and the ability to project one's thoughts to the world
PARJANYA The giver of rains, this field has the powers to bless the occupants with
fertility and fulfilment of all their wishes NORTH EAST

16. SOUTH EAST BHRISHA The power of friction needed to initiate any action , thinking or
activity AAKASH The energy that provides the space for manifestation ANILA The
energy of air or vayu, it helps to uplift the fire or push further the actions initiated

PUSHAN The energy of nourishment, it blocks the path of enemies The 32 Energy Fields of the Outer Periphery.

17. SOUTH WEST BHRINGRAJ The energy which extracts nutrients from the food and removes the waste MRIGHA The energy that drives curiosity and imparts skills PITRA The energy of the ancestors which provides all means of safety and happiness required for existence DAUWARIK The safe keeper, represents lord Nandi-the trusted vehicle of lord Shiva. The energy of being genius and highly knowledgeable The 32 Energy Fields of the Outer Peripher

18. NORTH WEST SHOSHA The power of detoxification from negative emotions PAPYAKSHMA The energy which gives addiction, diseases and the feeling of guilt ROGA The energy which provides support in the hour of need NAGA The energy which gives emotional enjoyments and cravings The 32 Energy Fields of the Outer Periphery

19. NORTH MUKHYA The chief architect or lord Vishwakarma, this energy field defines the main purpose of the building & also helps in their manifestation BHALLAT The energy field which grants colossal abundance, it magnifies the efforts and their results SOMA The energy field of Kubera - the lord of all wealth and money. It ensures a smooth flow of money and opportunities BHUJAG The the lord of hidden treasures, this energy field is the preserver of medicines. It safeguards the health of the occupants The 32 Energy Fields of the Outer Periphery

20. EAST JAYANT The energy which gives the sense of being victorious, it refreshes the mind and body MAHENDRA The energy which grants the power of administration and connectivity SURYA The core controller, this energy fields imparts health , fame and farsightedness SATYA The energy which establishes goodwill, status, authenticity and credibility The 32 Energy Fields of the Outer Periphery

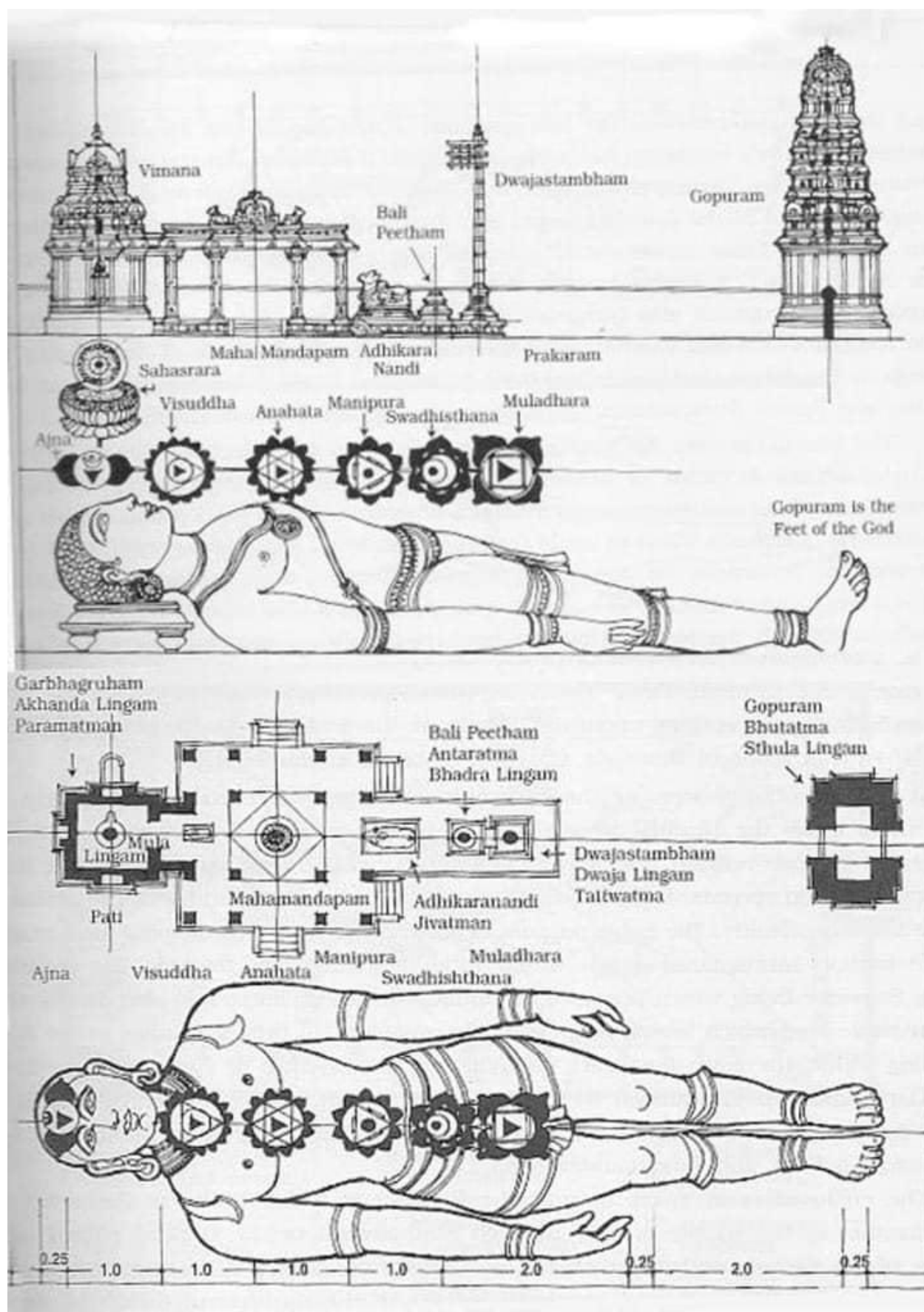
21. SOUTH VITATHA The energy field of falsehood, pretension and the unreal GRUHAKSHAT The power which binds the mind and defines its limits YAMA The

power of expansion, this energy field binds the world in laws GANDHARVA The energy of preservation of health & vitality. This energy also governs all kinds of arts and music The 32 Energy Fields of the Outer Periphery

22. WEST SUGREEV The power which grants the ability to receive all knowledge
PUSHPADANT The power which grants blessings and fulfills all desires VARUN The lord of the seas, this energy field observes and runs the whole world. It is the granter of immortality ASURA The the energy field that releases the mind from temptations and gives depth in spirituality The 32 Energy Fields of the Outer Periphery.

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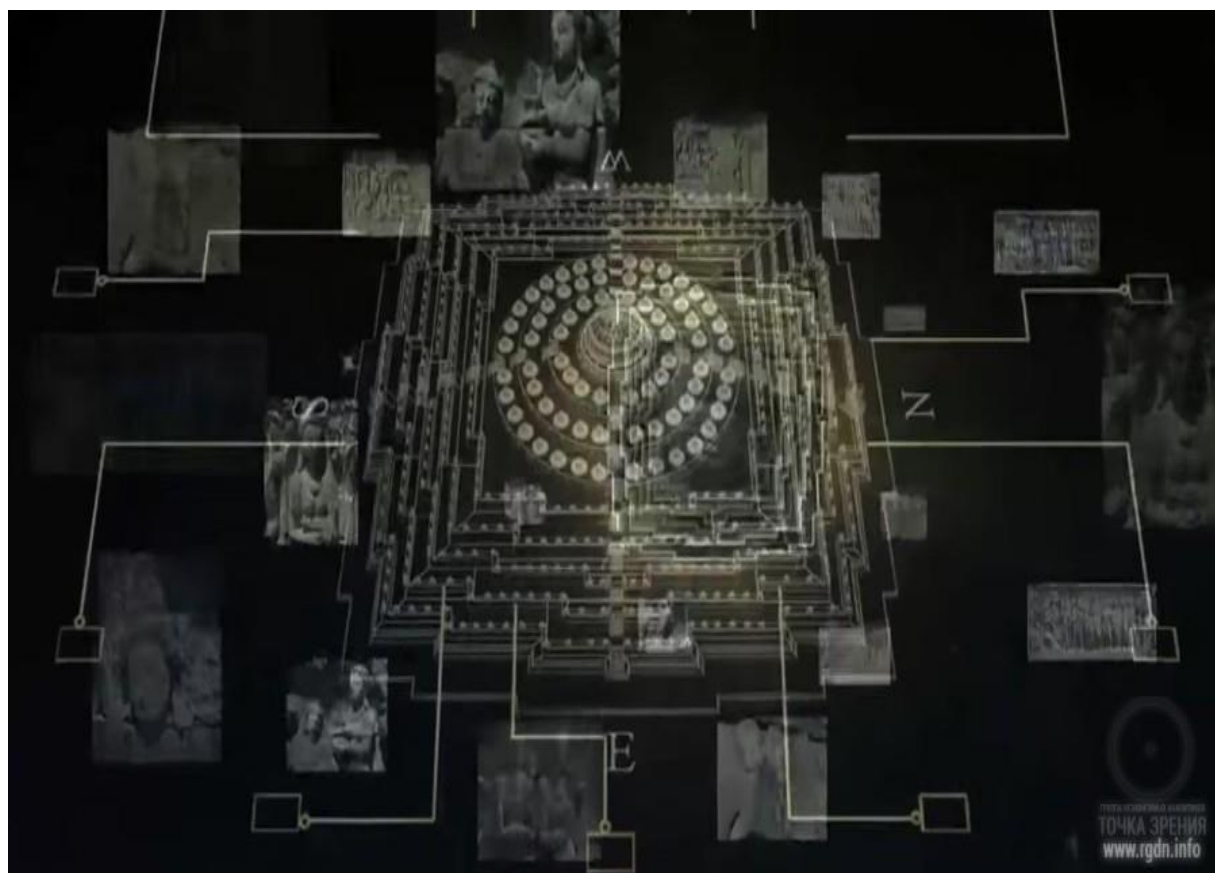
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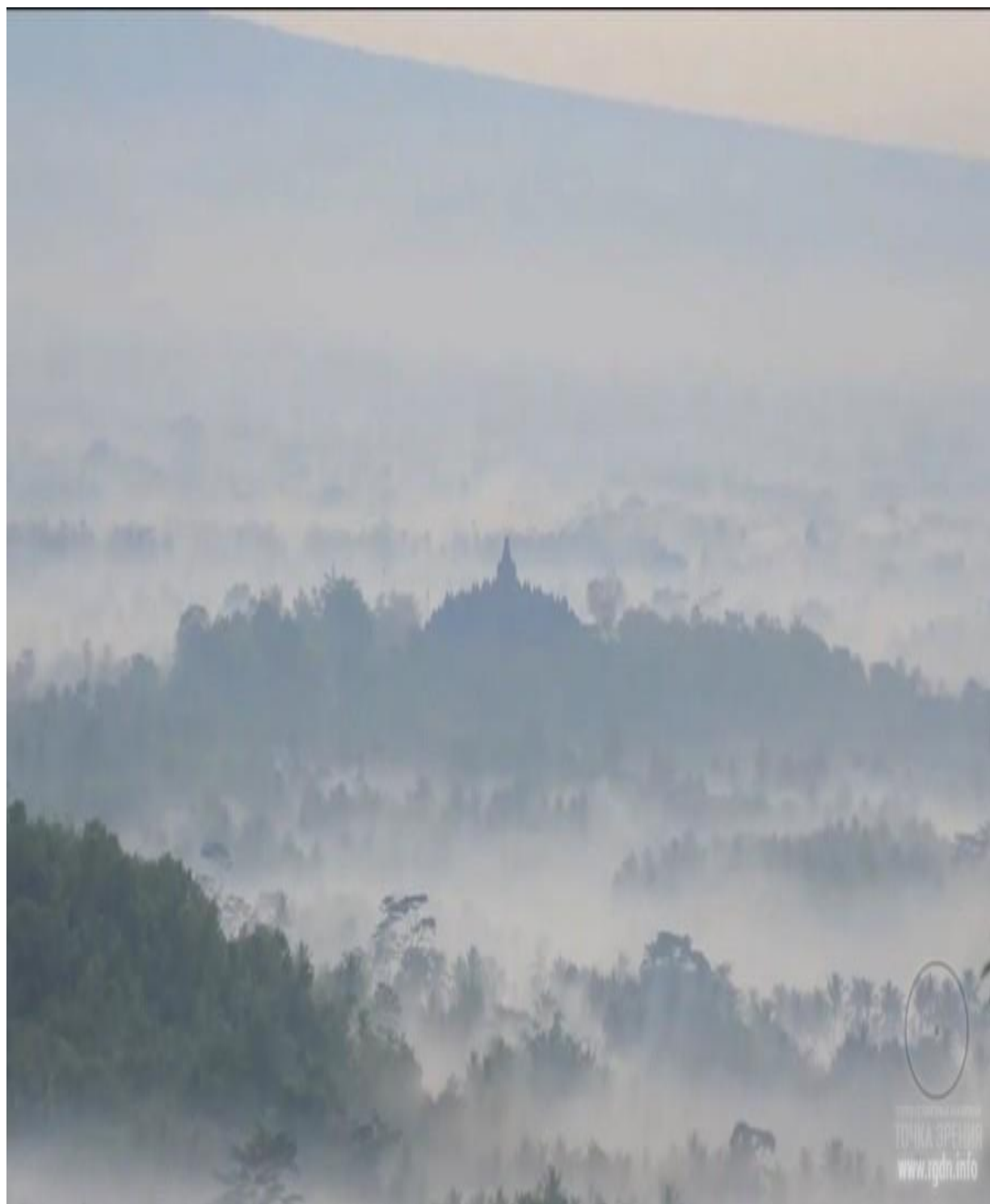


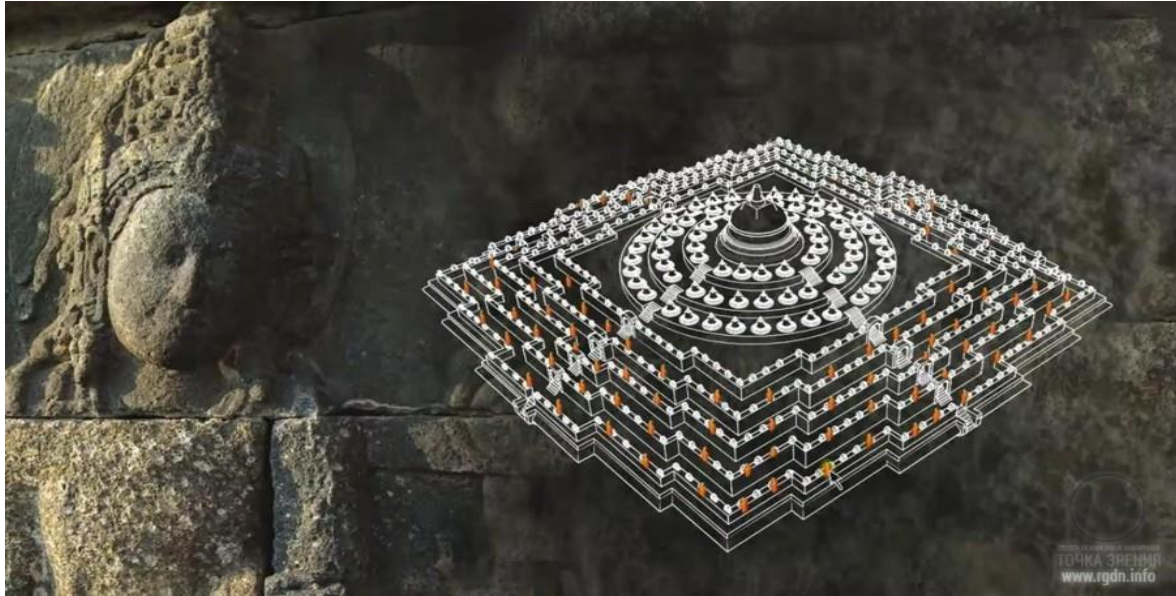
CHAPTER X

The Borobodur Temple as a MANDALA

Empires such as Bagan, Ayutthaya, Champa, Khmer, Srivijaya and Majapahit are known as "mandala" in this sense. Our temple is the second largest Buddhist temple in the world after Angkor Wat. Constructors erected this monument in the shape of a mandala and an opening Lotus flower on a square base (118 x 118 m) that smoothly turns into a circle.¹







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- the temple summit.
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The temple base is 118 x 118 m in width and 4 m in height. It is made of smooth plates with three tiers and 20 corners. The temple body consists of five square platforms-tiers: the higher one ascends the smaller every next tier is. The very first platform of the “monument body” is located 7 metres away from the edge of the base. Every subsequent platform is shifted 2 metres relative to the previous platform. The temple summit consists of three rounded platforms, on which 72 small stupas and the main stupa in the centre are installed. The central stupa is the highest point of the monument, towering 35 metres above the temple foot. It represents a bell-shaped stupa, 7 metres in height, topping the huge pyramid.

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3.The remarkable beauty is completed by the three upper rounded terraces. This is the Arupadhatu level. There are 32 stupas on the lowest terrace, 24 on the middle, and 16 on the upper. A natural-sized statue of Buddha is inside each of the stupas. The largest stupa – the symbol of eternity – finishes the building.

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If we consider the assumption of the Borobudur representing a *maṇḍala*, then the main *stūpa* signifies the final destination of the spiritual path, which is situated in the center of the cosmos. At this point one becomes united with the five transcendental Buddhas of the Formless Realm: Vairocana in the center, Akṣobhya in the East, Ratnasambhāva in the South, Amitābha in the West, and Amoghasiddhi in the North. This particular line-up corresponds with the *Vajradhātu Maṇḍala* and the *Garbhadhātu Maṇḍala* in Tibet and Nepal. One could gain access to the center of the cosmos by entering the *maṇḍala* from the outside, and gradually moving further inwards. In this context, a *maṇḍala* can be interpreted as a palace with four entrance gates at the four cardinal points of the Universe, stretching the entire cosmos. The palace is a metaphor for human manifestation in this world, which, by means of using the *maṇḍala* as a meditation object, guides the practitioner to the ultimate (spiritual) goal in life. Visualization techniques such as these are still being practised in Vajrayāna Buddhism today.



Though the assumption of the Borobudur as a *maṇḍala* seems possible, this view remains yet impossible to prove. In spite of the previously mentioned similarities with the *maṇḍalas*, there are, however, also many differences. Beside the five transcendental Buddhas many other deities – both male and female – are often seen depicted in *maṇḍalas*. However, neither of these deities can be found on the Borobudur. Instead we do find many other depicted Buddhas on the Borobudur, but these do not display any of the features similar to other male or female deities. Thus, the other Buddhas do not function as a mere substitution for the various other deities (like guards, gatekeepers, goddesses of worship or Taras) commonly seen in *maṇḍalas*. Therefore, we may assume, that, as already had been suggested, the Borobudur displays a variant of Buddhism in the way it manifested in Java at the time of the reign of

the Sailendra dynasty. This particular local variant of Buddhism was based on Indian influences and Mahāyāna Buddhism, which came to Java from China during the heydays of the Tang dynasty (618-906). The unique combination of these aspects would eventually become the Buddhism of Java. Then there also was the Hindu dynasty of Sanjaya that ruled on Java during the same period of the Sailendra dynasty. The fact that the Sanjaya shared their power with the Sailendra dynasty – for example, through donations for the construction of the Kalasan temple – illustrates, that, apart from its religious function, the Borobudur also formed an important expression of power.³

The role of royal patronage and religious institution⁴

The Borobudur monument combines the symbolic forms of the stupa (a Buddhist commemorative mound usually containing holy relics), the temple mountain (based on Mount Meru of Hindu mythology), and the mandala (a mystic Buddhist symbol of the universe, combining the square as earth and the circle as heaven). The style of Borobudur was influenced by Indian Gupta and post-Gupta art. In all the regions of Southeast Asia, the arts flourished under the patronage of the kings. About the time of the birth of Christ, tribal groups gradually organized themselves, after some years of settled life as rice cultivators, into city-kingsdoms, or conglomerations of villages. A king was thus little more than a paramount tribal chieftain. Since the tribes had been accustomed to worshipping local spirits, the kings sought a new spirit that would be worshiped by the whole community.

One reason that the gods of Hinduism and Buddhism were so readily acceptable to Southeast Asia was this need for new national gods. The propagation of the new religions was the task of the kings, and consequently the period from the 1st to the 13th century was a great age of temple building all over Southeast Asia.

Architecture, sculpture, and painting on the temple walls were the arts that flourished. In the ancient empires of eastern Indochina and the islands, scholars of Sanskrit, the language of the sacred works of Hinduism, became part of the king's court, producing a local Sanskrit literature of their own. This literary activity was confined to the hereditary nobility and never reached the people, except in stories from the great Hindu epics *Mahabharata* and *Ramayana*. Because the Hindu religious writings in Sanskrit were beyond the reach of the common people, Hinduism had to be explained to them by Hindu stories of gods and demons and mighty men. On the other side of the peninsula, in the Pyu-Burmese empire of Prome, which flourished before the 8th century, there was no such development—first, because Hinduism was never widely accepted in Burma and, second, because the more open Burmese society developed neither

the institution of a god-king nor that of a hereditary nobility. Although Pali scholars surrounded the king in later Pagan, Pali studies were pursued not at the court but at monasteries throughout the kingdom so that even the humblest villager had some faint contact with Pali teachings. While the courts of the kings in Cambodia and Java remained merely local centres of Sanskrit scholarship, Pagan became a centre of Pali learning for Buddhist monks and scholars even from other lands. As in the case of stories from the Indian epics, stories of the Jatakas (birth stories of the Buddha) were used to explain Buddhism to the common people, who could not read the scriptures written in Pali. Just as scenes from the great epics in carving or in fresco adorned the temples in Cambodia and Java, scenes from the *Jatakas* adorned the Pagan temples.

The patronage of the king and the religious enthusiasm of the common people could not have produced the great temples without the enormous wealth that suddenly became available in the region following the commercial expansion. With the Khmer and Javanese empires, the wealth was produced by a feudalistic society, and so the temples were built by the riches of the king and his nobles, combined with the compulsory labour of their peasants and slaves, who probably derived some aesthetic pleasure from their work because of their religious fervour. Nonetheless, their monuments, such as Borobudur, in Java, and Angkor Wat, in Cambodia, had an atmosphere of massive, all-conquering power. At Pagan, where wealth was shared by the king, the royal officials, and the common people, the temples and the monasteries were built by all who had enough not only to pay the artisans their wages but also to guarantee their good health, comfort, and safety during the actual construction. The temples were dedicated for use by all monks and lay people as places of worship, meditation, and study, and the kings of Pagan did not build a single tomb for themselves. The Khmer temple of Angkor Wat and the Indonesian temple of Borobudur were tombs in that the ashes of the builders would be enshrined therein; the kings left stone statues representing them as gods for posterity to worship, whereas at Pagan there was only one statue of a king, and it depicted him on his knees with his hands raised in supplication to the Buddha. Consequently, the atmosphere that pervaded the temples of Pagan was one of joy and tranquillity.

The mandala is likened by some to a "floor plan of the universe." The type most familiar in the West is an intricately patterned painting on cloth or paper that often takes the general form of a circle within a square.

The word "mandala" comes from the Sanskrit verbal root "mand" (meaning to mark off, decorate, set off) and the Sanskrit suffix "la" (meaning circle, essence, sacred center).

The mandala's symbolic power can be traced back to millennia-old roots in Indian temple architecture, which created sacred spaces linking the worshiper to the larger cosmos. In these temples, time and space were represented in a vocabulary of circles and squares. Similarly, a mandala helps believers visualize the universe and their place in it, often in relation to a specific deity found in the center of the image.

the evolution of the symbol has happened throughout Asia under the influence of various religious and artistic traditions over a period of several thousand years-some complex; others quite simple offering proof of the continuing vitality of the mandala and its role in Buddhist devotions. The mandala is of significant importance in both Hinduism and Buddhism. Both religions adopt the mandala as a peaceful and creative symbol. Hence, the speculative project finds a balance to build a memorial, which will signify peace and harmony of the Tamil community. The scale of the mandala here is monumental imposing the idea of spirituality and peace. Contemplating the mandala does not only provide insight into reality, the Cosmos but also communion with it.

Mandala is the mystery that pervades all existence. Mandala alleviates suffering individually as well as in society. Contemplation can help overcome antagonism, conflict, stress and even war. Bindu as a symbolism is the beginning of the process that culminates into a mandala.

In Buddhism, the mandala is a ritual instrument, much like a mantra, used to assist meditation and concentration. Throughout history, these pictorial temples--intricate, two-dimensional, multi-colored patterns

of concentric circles, squares, and other shapes--have signified the human need for wholeness, order, and balance. But while many people of the West accept mandalas as representative of a cosmic force, few understand they are meant to be blueprints as well. Indeed, a Tantric Buddhist meditator studies a two-dimensional mandala like an architect, building up in his mind the image of a palace encompassing the sacred principles of Buddhist philosophy.

MANDALA AND BUDDHIST TEMPLE ARCHITECTURE

The mandala in Buddhism is a cosmic model depicting Buddha's dwelling place as the center of the universe. Like in the Hindu temples, the structuring of the Buddhist temples has also been predominantly based on the spiritual model of the mandala. Illustrations can be seen both in the form of two-dimensional mandalas as well as three-dimensional mandalas. The two-dimensional mandalas which are drawings composed of squares and concentric circles could be temporarily painted on various material or drawn on the ground or sand or other natural substances using coloured powder. Customs involving ceremonious gatherings along with prayers and chantings while drawing the mandalas are believed to alleviate

difficulties and be of greater good to an individual or a community. These ceremonies could even last up to a number of days.

Three-dimensionally, the mandala diagram becomes a visual model of the built environment. In the Buddhist worship place, the central space is significant having a statue of the Buddha fronted by a worshipping space surrounded by walls. This is encircled by a circumambulating space. The circumambulation pathway is a space of psychological awakening before reaching the spiritual pinnacle

MANDALA AND HINDU TEMPLE ARCHITECTURE

Although there have been various arguments by authors of Indian temple architecture like Stella Kramrisch and Michael W. Meister about the applicability of the Vastu Purusha Mandala as a governing device for temple architecture, it is safe to say that for formulating the layout of the temple, the Vastu Purusha Mandala has been an imperative tool. Though the 8 x 8 grid or the Manduka Vastu Mandala has been used in various temples of Indian architecture, it is to be noted that regional differences have played a major influence on the workability of the mandala design throughout India. Customarily, mandalas were spaces for the symbolic consciousness of universal theories which help in the awakening of the individual psyche. The mandalas can be thought of as diagrams that function as a cue to reach a contemplational state which is the primary aim of the tradition. The form of the temples that are based on the regulating lines of the mandala were meant to create spaces that bring about a “physical and spatial” communion between God and man.

A **mandala** (emphasis on first syllable; Sanskrit मण्डल, maṇḍala – literally "circle") is a geometric configuration of symbols with a very different application. In various spiritual traditions, mandalas may be employed for focusing attention of practitioners and adepts, as a spiritual guidance tool, for establishing a sacred space and as an aid to meditation and trance induction. It is used as a map (in Shintoism) in the Indian religions of Hinduism, Buddhism, Jainism or Japanese religion of Shintoism representing deities, or in the case of Shintoism, paradises, kami or actual shrines.

In New Age, the mandala is a diagram, chart or geometric pattern that represents the cosmos metaphysically or symbolically; a time-microcosm of the universe, but it originally meant to represent wholeness and a model for the organizational structure of life itself, a cosmic diagram that shows the relation to the infinite and the world that extends beyond and within minds and bodies.

he basic form of hinduism mandalas is a square with four gates containing a circle with a center point and it is called also a yantra. Each gate is in the general shape of a T. Mandalas often have radial balance.

A yantra is similar to a mandala, usually smaller and using a more limited colour palette. It may be a two- or three-dimensional geometric composition used in sadhanas, puja or meditative rituals, and may incorporate a mantra into its design. It is considered to represent the abode of the deity. Each yantra is unique and calls the deity into the presence of the practitioner through the elaborate symbolic geometric designs. According to one scholar, "Yantras function as revelatory symbols of cosmic truths and as instructional charts of the spiritual aspect of human experience"^[5]

Many situate yantras as central focus points for Hindu tantric practice. Yantras are not representations, but are lived, experiential, nondual realities. As Khanna describes:

Despite its cosmic meanings a yantra is a reality lived. Because of the relationship that exists in the Tantras between the outer world (the macrocosm) and man's inner world (the microcosm), every symbol in a yantra is ambivalently resonant in inner-outer synthesis, and is associated with the subtle body and aspects of human consciousness.



Political meaning

The Rajamandala (or Raja-mandala; circle of states) was formulated by the Indian author Kautilya in his work on politics, the Arthashastra (written between 4th century BCE and 2nd century BCE). It describes circles of friendly and enemy states surrounding the king's state.

In historical, social and political sense, the term "mandala" is also employed to denote traditional Southeast Asian political formations (such as federation of kingdoms or vassalized states). It was adopted by 20th century Western historians from ancient Indian political discourse as a means of avoiding the term 'state' in the conventional sense. Not only did Southeast Asian polities not conform to Chinese and European views of a territorially defined state with fixed borders and a bureaucratic apparatus, but they diverged considerably in the opposite direction: the polity was defined by its centre rather than its boundaries, and it could be composed of numerous other tributary polities without undergoing administrative integration.

Mount Meru

A mandala can also represent the entire universe, which is traditionally depicted with Mount Meru as the axis mundi in the center, surrounded by the continents.

Wisdom and impermanence

In the mandala, the outer circle of fire usually symbolises wisdom. The ring of eight charnel grounds represents the Buddhist exhortation to be always mindful of death, and the impermanence with which samsara is suffused: "such locations were utilized in order to confront and to realize the transient nature of life". Described elsewhere: "within a flaming rainbow nimbus and encircled by a black ring of dorjes, the major outer ring depicts the eight great charnel grounds, to emphasize the dangerous nature of human life". Inside these rings lie the walls of the mandala palace itself, specifically a place populated by deities and Buddhas.

Five Buddhas

One well-known type of mandala is the mandala of the "Five Buddhas", archetypal Buddha forms embodying various aspects of enlightenment. Such Buddhas are depicted depending on the school of Buddhism, and even the specific purpose of the mandala. A common mandala of this type is that of the Five Wisdom Buddhas (a.k.a. Five Jinas), the

1. Buddhas Vairocana,
2. Aksobhya,
3. Ratnasambhava,
4. Amitabha and
5. Amoghasiddhi.

When paired with another mandala depicting the Five Wisdom Kings, this forms the Mandala of the Two Realms.

Practice

Mandalas are commonly used by tantric Buddhists as an aid to meditation.

The mandala is "a support for the meditating person", something to be repeatedly contemplated to the point of saturation, such that the image of the mandala becomes fully internalised in even the minutest detail and can then be summoned and contemplated at will as a clear and vivid visualized image. With every mandala comes what Tucci calls "its associated liturgy ... contained in texts known as tantras" instructing practitioners on how the mandala should be drawn, built and visualised, and indicating the mantras to be recited during its ritual use.

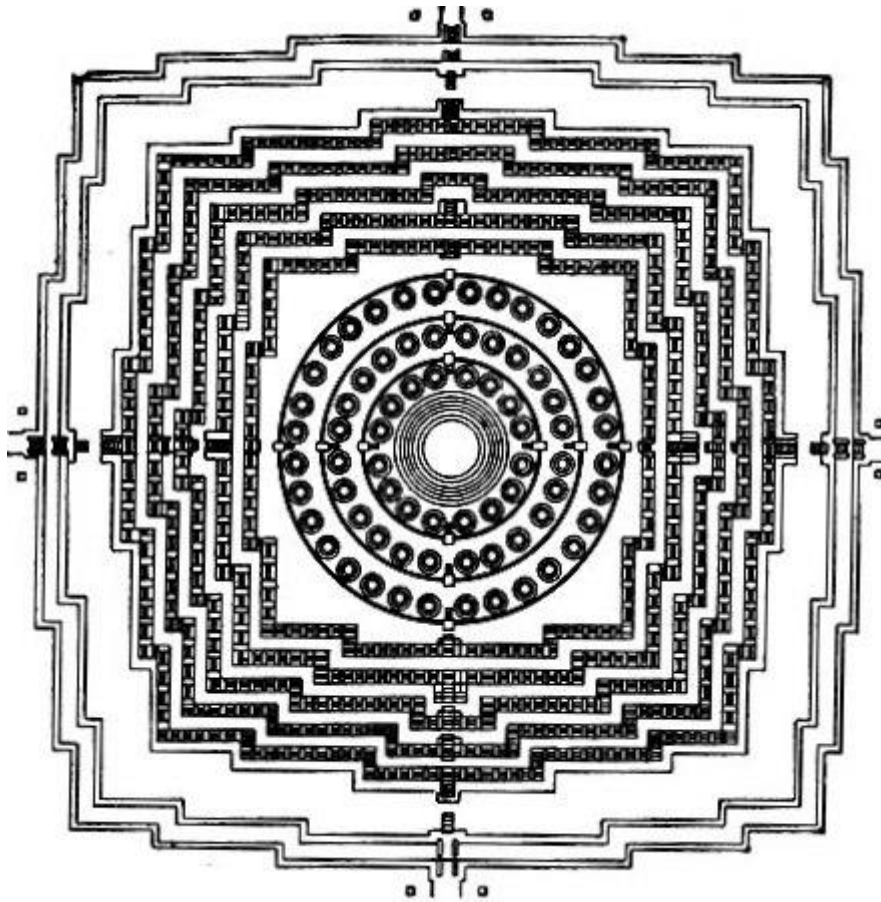
By visualizing "pure lands", one learns to understand experience itself as pure, and as the abode of enlightenment. The protection that we need, in this view, is from our own minds, as much as from external sources of confusion. In many tantric mandalas, this aspect of separation and protection from the outer samsaric world is depicted by "the four outer circles: the purifying fire of wisdom, the vajra circle, the circle with the eight tombs, the lotus circle". The ring of vajras forms a connected fence-like arrangement running around the perimeter of the outer mandala circle.

As a meditation on impermanence (a central teaching of Buddhism), after days or weeks of creating the intricate pattern of a sand mandala, the sand is brushed together into a pile and spilled into a body of running water to spread the blessings of the mandala. External ritual and internal sadhana form an indistinguishable whole, and this unity finds its most pregnant expression in the form of the mandala, the sacred enclosure consisting of concentric squares and circles drawn on the ground and representing that adamant plane of being on which the aspirant to Buddha hood wishes to establish himself. The unfolding of the tantric ritual depends on the mandala; and where a material mandala is not employed, the adept proceeds to construct one mentally in the course of his meditation."

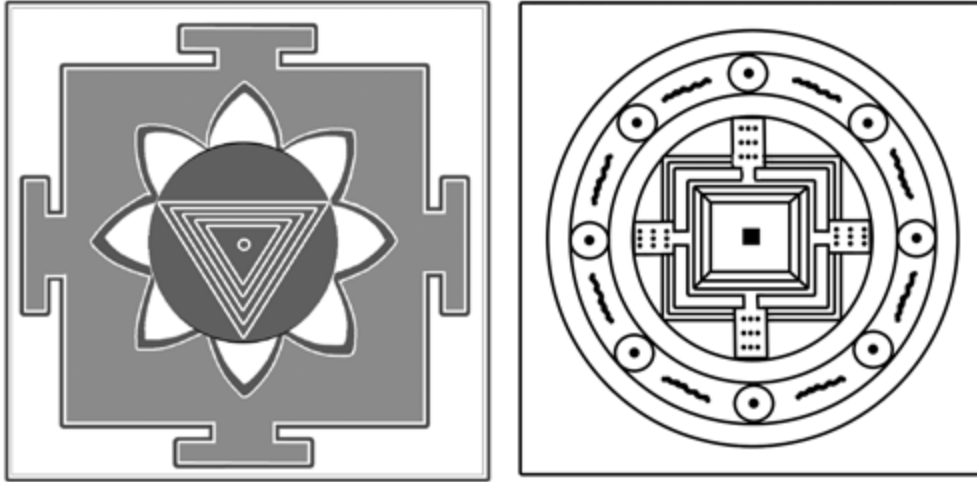
Conclusions:

1. Borobudur in its base is a regular square with 118-m sides.
2. Such layout is used in meditative practices of Hinduism and Buddhism to intensify processes of inner concentration during meditation.
3. The numbers 7, 72. were applied in the temple design and construction, which evidences the availability of relevant knowledge at that time.
4. No wonder, the temple complex is under UNESCO protection, i.e. it is not available for further studies.

5. If we look at Borobudur from above, we can see it represents a complete mandala.



6. The temple has 8 tiers: 5 square and 3 round ones. On the upper tier, there is the large stupa – a bell-shaped monument with a statue of Buddha inside.
7. Borobudur is situated approximately 2,439.85 km (1,516.05 miles) away from Angkor Wat.
8. If we look at mutual disposition of some ancient religious sites from the North Pole, interesting correlations may be observed.
9. At the upper tier there are 72 small bell-shaped, stupa-like towers located around the big central tower.
10. Between Chandi Mendut and Borobudur there is the small Chandi Pavon – at a distance of approximately 1,150 metres away from Mendut and 1,750 metres away from Borobudur. Disposition of the structures complies with the golden ratio.



A mandala and a yantra

11. Mandala in the form of a circle with an indication of a square and a point in the centre, and a four-sided pyramid with six steps and fourfold division;

12. Kali Yantra (translated from Sanskrit, “kala” means “time”; this word originates from the Indo-European root that means spinning; a word that is close in its meaning in Russian is “kolo”); in Hindu mythology it means cyclical creations and destructions of the Universe, rotation of time in the concept of rebirth of the Soul and of a subject of fate.

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2. *See Chapter 4*

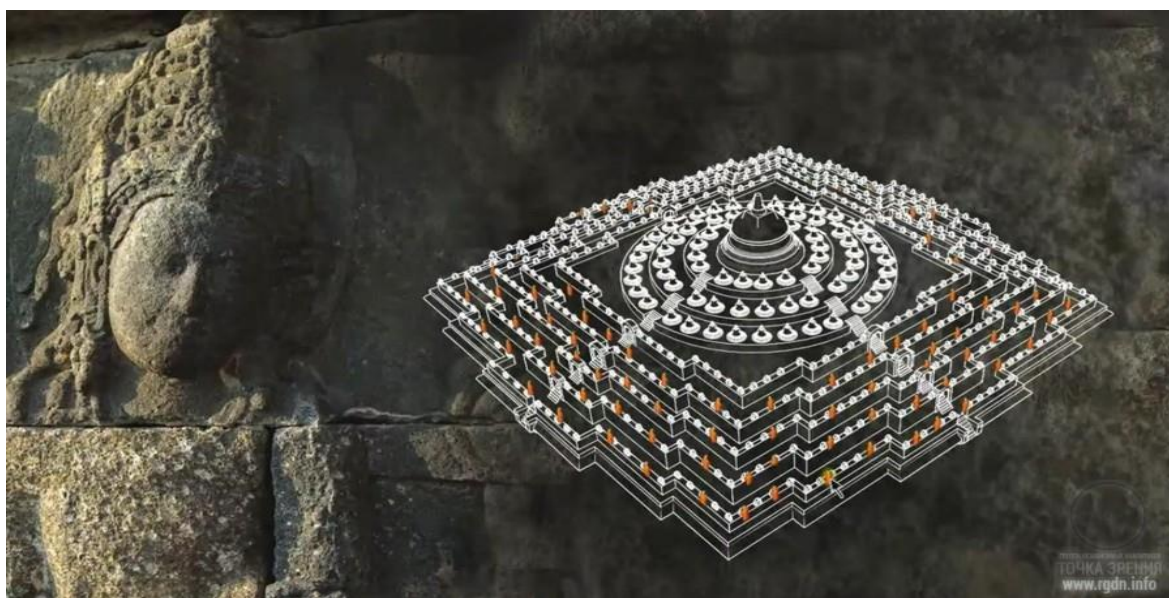
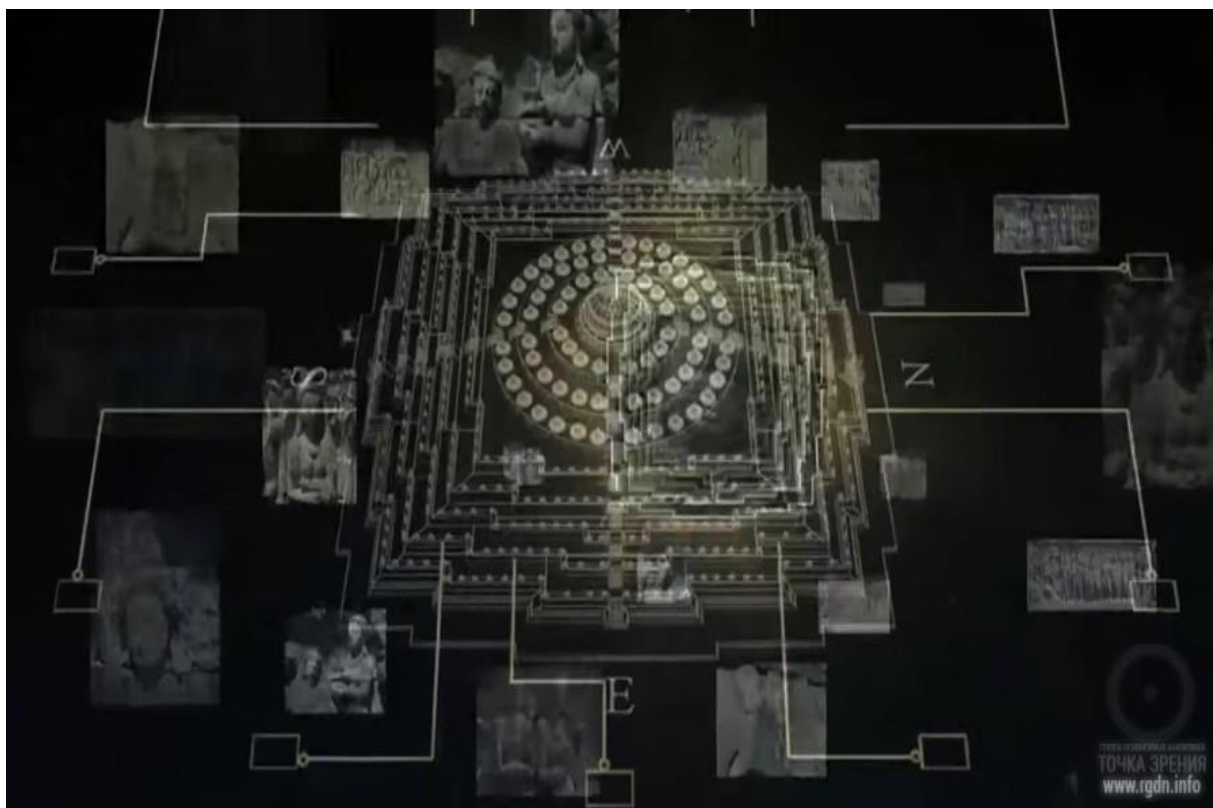
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At first sight, all statues of Buddha look alike, but there is a subtle difference between them in a certain position of Buddha's hands See Chapter44

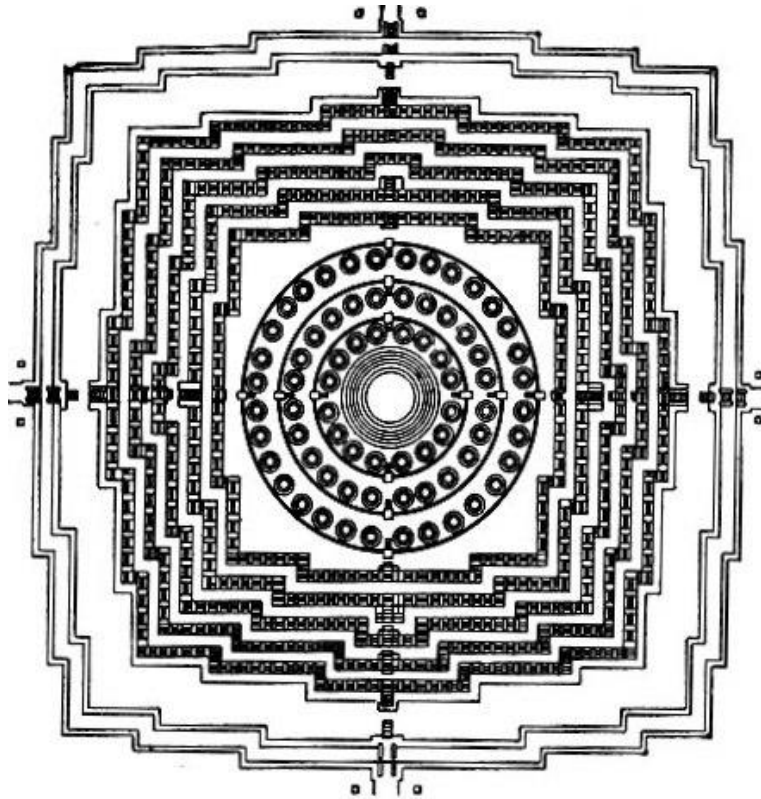
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Thus, most likely the architecture of the Borobudur is based on a Javanese variant of Buddhism, for if we look at the decoration in greater detail we obviously can confirm that its origin is based on Indian mythology and Buddhist iconography, however, we can also clearly see how these fundamental elements have been strongly combined with local (that is, Javanese) influences. The style in which the characters are depicted on the Borobudur differ greatly from the traditional Indian (Buddhist) iconography. The statues are depicted in other bodily postures, and with less refined details as they have in India; the Javanese obviously had a different idea of physical beauty and how this ought to be depicted, and that's why on the Borobudur the voluptuous curves of the body as familiar in Indian iconography are altered according to local Javanese perception of beauty (by which the female body is dressed in more clothes, and often can only be distinguished from the male body by the curves of their breasts).



If we consider the assumption of the Borobudur representing a *maṇḍala*, then the main *stūpa* signifies the final destination of the spiritual path, which is situated in the center of the cosmos. At this point one becomes united with the five transcendental Buddhas of the Formless Realm: Vairocana in the center, Akṣobhya in the East, Ratnasambhāva in the South, Amitābha in the West, and Amoghasiddhi in the North. This particular line-up corresponds with the *Vajradhātu Maṇḍala* and the *Garbhadhātu Maṇḍala* in Tibet and Nepal. One could gain access to the center of the cosmos by entering the *maṇḍala* from the outside, and gradually moving further inwards. In this context, a *maṇḍala* can be interpreted as a palace with four entrance gates at the four cardinal points of the Universe, stretching the entire cosmos. The palace is a metaphor for human manifestation in this world, which, by means of using the *maṇḍala* as a meditation object, guides the practitioner to the ultimate (spiritual) goal in life. Visualization techniques such as these are still being practised in Vajrayāna Buddhism today.



Though the assumption of the Borobudur as a *maṇḍala* seems possible, this view remains yet impossible to prove. In spite of the previously mentioned similarities with the *maṇḍalas*, there are, however, also many differences. Beside the five transcendental Buddhas many other deities – both male and female – are often seen depicted in *maṇḍalas*. However, neither of these deities can be found on the Borobudur. Instead we do find many other depicted Buddhas on the Borobudur, but these do not display any of the features similar to other male or female deities. Thus, the other Buddhas do not function as a mere substitution for the various other deities (like guards, gatekeepers, goddesses of worship or Taras) commonly seen in *maṇḍalas*. Therefore, we may assume, that, as already had been suggested, the Borobudur displays a variant of Buddhism in the way it manifested in Java at the time of the reign of the Sailendra dynasty. This particular local variant of Buddhism was based on Indian influences and Mahāyāna Buddhism, which came to Java from China during the heydays of the Tang dynasty (618-906). The unique combination of these aspects would eventually become the Buddhism of Java. Then there also was the Hindu dynasty of Sanjaya that ruled on Java during the same period of the Sailendra dynasty. The fact that the Sanjaya shared their power with the Sailendra dynasty – for example, through donations for the construction of the Kalasan temple – illustrates, that, apart from its religious function, the Borobudur also formed an important expression of power.³

The role of royal patronage and religious institution⁴

The Borobudur monument combines the symbolic forms of the stupa (a Buddhist commemorative mound usually containing holy relics), the temple mountain (based on Mount Meru of Hindu mythology), and the mandala (a mystic Buddhist symbol of the universe, combining the square as earth and the circle as heaven). The style of Borobudur was influenced by Indian Gupta and post-Gupta art. In all the regions of Southeast Asia, the arts flourished under the patronage of the kings. About the time of the birth of Christ, tribal groups gradually organized themselves, after some years of settled life as rice cultivators, into city-kingdoms, or conglomerations of villages. A king was thus little more than a paramount tribal chieftain. Since the tribes had been accustomed to worshipping local spirits, the kings sought a new spirit that would be worshiped by the whole community.

One reason that the gods of Hinduism and Buddhism were so readily acceptable to Southeast Asia was this need for new national gods. The propagation of the new religions was the task of the kings, and consequently the period from the 1st to the 13th century was a great age of temple building all over Southeast Asia.

Architecture, sculpture, and painting on the temple walls were the arts that flourished. In the ancient empires of eastern Indochina and the islands, scholars of Sanskrit, the language of the sacred works of Hinduism, became part of the king's court, producing a local Sanskrit literature of their own. This literary activity was confined to the hereditary nobility and never reached the people, except in stories from the great Hindu epics *Mahabharata* and *Ramayana*. Because the Hindu religious writings in Sanskrit were beyond the reach of the common people, Hinduism had to be explained to them by Hindu stories of gods and demons and mighty men. On the other side of the peninsula, in the Pyu-Burmese empire of Prome, which flourished before the 8th century, there was no such development—first, because Hinduism was never widely accepted in Burma and, second, because the more open Burmese society developed neither the institution of a god-king nor that of a hereditary nobility. Although Pali scholars surrounded the king in later Pagan, Pali studies were pursued not at the court but at monasteries throughout the kingdom so that even the humblest villager had some faint contact with Pali teachings. While the courts of the kings in Cambodia and Java remained merely local centres of Sanskrit scholarship, Pagan became a centre of Pali learning for Buddhist monks and scholars even from other lands. As in the case of stories from the Indian epics, stories of the Jatakas (birth stories of the Buddha) were used to explain Buddhism to the common people, who could not read the scriptures written in Pali. Just as scenes from the great epics in

carving or in fresco adorned the temples in Cambodia and Java, scenes from the *Jatakas* adorned the Pagan temples.

The patronage of the king and the religious enthusiasm of the common people could not have produced the great temples without the enormous wealth that suddenly became available in the region following the commercial expansion. With the Khmer and Javanese empires, the wealth was produced by a feudalistic society, and so the temples were built by the riches of the king and his nobles, combined with the compulsory labour of their peasants and slaves, who probably derived some aesthetic pleasure from their work because of their religious fervour. Nonetheless, their monuments, such as Borobudur, in Java, and Angkor Wat, in Cambodia, had an atmosphere of massive, all-conquering power. At Pagan, where wealth was shared by the king, the royal officials, and the common people, the temples and the monasteries were built by all who had enough not only to pay the artisans their wages but also to guarantee their good health, comfort, and safety during the actual construction. The temples were dedicated for use by all monks and lay people as places of worship, meditation, and study, and the kings of Pagan did not build a single tomb for themselves. The Khmer temple of Angkor Wat and the Indonesian temple of Borobudur were tombs in that the ashes of the builders would be enshrined therein; the kings left stone statues representing them as gods for posterity to worship, whereas at Pagan there was only one statue of a king, and it depicted him on his knees with his hands raised in supplication to the Buddha. Consequently, the atmosphere that pervaded the temples of Pagan was one of joy and tranquillity.

The mandala is likened by some to a "floor plan of the universe." The type most familiar in the West is an intricately patterned painting on cloth or paper that often takes the general form of a circle within a square.

The word "mandala" comes from the Sanskrit verbal root "mand" (meaning to mark off, decorate, set off) and the Sanskrit suffix "la" (meaning circle, essence, sacred center).

The mandala's symbolic power can be traced back to millennia-old roots in Indian temple architecture, which created sacred spaces linking the worshiper to the larger cosmos. In these temples, time and space were represented in a vocabulary of circles and squares. Similarly, a mandala helps believers visualize the universe and their place in it, often in relation to a specific deity found in the center of the image.

the evolution of the symbol has happened throughout Asia under the influence of various religious and artistic traditions over a period of several thousand years-some complex; others quite simple offering proof of the continuing vitality of the mandala and its role in Buddhist devotions. The mandala is of

significant importance in both Hinduism and Buddhism. Both religions adopt the mandala as a peaceful and creative symbol. Hence, the speculative project finds a balance to build a memorial, which will signify peace and harmony of the Tamil community. The scale of the mandala here is monumental imposing the idea of spirituality and peace. Contemplating the mandala does not only provide insight into reality, the Cosmos but also communion with it.

Mandala is the mystery that pervades all existence. Mandala alleviates suffering individually as well as in society. Contemplation can help overcome antagonism, conflict, stress and even war. Bindu as a symbolism is the beginning of the process that culminates into a mandala.

In Buddhism, the mandala is a ritual instrument, much like a mantra, used to assist meditation and concentration. Throughout history, these pictorial temples--intricate, two-dimensional, multi-colored patterns of concentric circles, squares, and other shapes--have signified the human need for wholeness, order, and balance. But while many people of the West accept mandalas as representative of a cosmic force, few understand they are meant to be blueprints as well. Indeed, a Tantric Buddhist meditator studies a two-dimensional mandala like an architect, building up in his mind the image of a palace encompassing the sacred principles of Buddhist philosophy.

MANDALA AND BUDDHIST TEMPLE ARCHITECTURE

The mandala in Buddhism is a cosmic model depicting Buddha's dwelling place as the center of the universe. Like in the Hindu temples, the structuring of the Buddhist temples has also been predominantly based on the spiritual model of the mandala. Illustrations can be seen both in the form of two-dimensional mandalas as well as three-dimensional mandalas. The two-dimensional mandalas which are drawings composed of squares and concentric circles could be temporarily painted on various material or drawn on the ground or sand or other natural substances using coloured powder. Customs involving ceremonious gatherings along with prayers and chantings while drawing the mandalas are believed to alleviate difficulties and be of greater good to an individual or a community. These ceremonies could even last up to a number of days.

Three-dimensionally, the mandala diagram becomes a visual model of the built environment. In the Buddhist worship place, the central space is significant having a statue of the Buddha fronted by a worshipping space surrounded by walls. This is encircled by a circumambulating space. The circumambulation pathway is a space of psychological awakening before reaching the spiritual pinnacle

MANDALA AND HINDU TEMPLE ARCHITECTURE

Although there have been various arguments by authors of Indian temple architecture like Stella Kramrisch and Michael W. Meister about the applicability of the Vastu Purusha Mandala as a governing

device for temple architecture, it is safe to say that for formulating the layout of the temple, the Vastu Purusha Mandala has been an imperative tool. Though the 8 x 8 grid or the Manduka Vastu Mandala has been used in various temples of Indian architecture, it is to be noted that regional differences have played a major influence on the workability of the mandala design throughout India. Customarily, mandalas were spaces for the symbolic consciousness of universal theories which help in the awakening of the individual psyche. The mandalas can be thought of as diagrams that function as a cue to reach a contemplational state which is the primary aim of the tradition. The form of the temples that are based on the regulating lines of the mandala were meant to create spaces that bring about a “physical and spatial” communion between God and man.

A mandala (emphasis on first syllable; Sanskrit मण्डल, maṇḍala – literally "circle") is a geometric configuration of symbols with a very different application. In various spiritual traditions, mandalas may be employed for focusing attention of practitioners and adepts, as a spiritual guidance tool, for establishing a sacred space and as an aid to meditation and trance induction. It is used as a map (in Shintoism) in the Indian religions of Hinduism, Buddhism, Jainism or Japanese religion of Shintoism representing deities, or in the case of Shintoism, paradises, kami or actual shrines.

In New Age, the mandala is a diagram, chart or geometric pattern that represents the cosmos metaphysically or symbolically; a time-microcosm of the universe, but it originally meant to represent wholeness and a model for the organizational structure of life itself, a cosmic diagram that shows the relation to the infinite and the world that extends beyond and within minds and bodies.

The basic form of hinduism mandalas is a square with four gates containing a circle with a center point and it is called also a yantra. Each gate is in the general shape of a T. Mandalas often have radial balance.

A yantra is similar to a mandala, usually smaller and using a more limited colour palette. It may be a two- or three-dimensional geometric composition used in sadhanas, puja or meditative rituals, and may incorporate a mantra into its design. It is considered to represent the abode of the deity. Each yantra is unique and calls the deity into the presence of the practitioner through the elaborate symbolic geometric designs. According to one scholar, "Yantras function as revelatory symbols of cosmic truths and as instructional charts of the spiritual aspect of human experience"^[5]

Many situate yantras as central focus points for Hindu tantric practice. Yantras are not representations, but are lived, experiential, nondual realities. As Khanna describes:

Despite its cosmic meanings a yantra is a reality lived. Because of the relationship that exists in the Tantras between the outer world (the macrocosm) and man's inner world (the microcosm), every symbol in a yantra is ambivalently resonant in inner–outer synthesis, and is associated with the subtle body and aspects of human consciousness.

Political meaning

The Rajamandala (or Raja-mandala; circle of states) was formulated by the Indian author Kautilya in his work on politics, the Arthashastra (written between 4th century BCE and 2nd century BCE). It describes circles of friendly and enemy states surrounding the king's state.

In historical, social and political sense, the term "mandala" is also employed to denote traditional Southeast Asian political formations (such as federation of kingdoms or vassalized states). It was adopted by 20th century Western historians from ancient Indian political discourse as a means of avoiding the term 'state' in the conventional sense. Not only did Southeast Asian polities not conform to Chinese and European views of a territorially defined state with fixed borders and a bureaucratic apparatus, but they diverged considerably in the opposite direction: the polity was defined by its centre rather than its boundaries, and it could be composed of numerous other tributary polities without undergoing administrative integration.

Mount Meru

A mandala can also represent the entire universe, which is traditionally depicted with Mount Meru as the axis mundi in the center, surrounded by the continents.

Wisdom and impermanence

In the mandala, the outer circle of fire usually symbolises wisdom. The ring of eight charnel grounds represents the Buddhist exhortation to be always mindful of death, and the impermanence with which *samsara* is suffused: "such locations were utilized in order to confront and to realize the transient nature of life". Described elsewhere: "within a flaming rainbow nimbus and encircled by a black ring of dorjes, the major outer ring depicts the eight great charnel grounds, to emphasize the dangerous nature of human life". Inside these rings lie the walls of the mandala palace itself, specifically a place populated by deities and Buddhas.

Five Buddhas

One well-known type of mandala is the mandala of the "Five Buddhas", archetypal Buddha forms embodying various aspects of enlightenment. Such Buddhas are depicted depending on the school of Buddhism, and even the specific purpose of the mandala. A common mandala of this type is that of the Five Wisdom Buddhas (a.k.a. Five Jinas), the

6. Buddhas Vairocana,
7. Aksobhya,
8. Ratnasambhava,
9. Amitabha and
10. Amoghasiddhi.

When paired with another mandala depicting the Five Wisdom Kings, this forms the Mandala of the Two Realms.

Practice

Mandalas are commonly used by tantric Buddhists as an aid to meditation.

The mandala is "a support for the meditating person", something to be repeatedly contemplated to the point of saturation, such that the image of the mandala becomes fully internalised in even the minutest detail and can then be summoned and contemplated at will as a clear and vivid visualized image. With every mandala comes what Tucci calls "its associated liturgy ... contained in texts known as tantras" instructing practitioners on how the mandala should be drawn, built and visualised, and indicating the mantras to be recited during its ritual use.

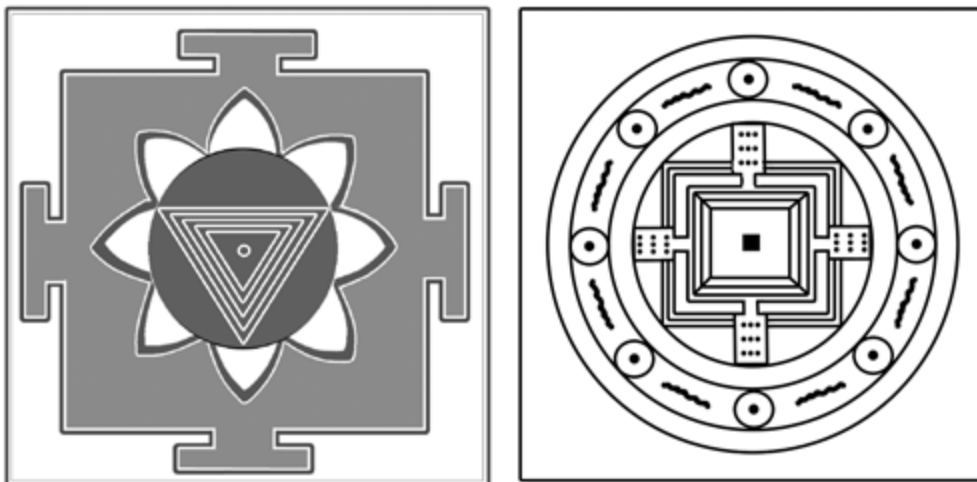
By visualizing "pure lands", one learns to understand experience itself as pure, and as the abode of enlightenment. The protection that we need, in this view, is from our own minds, as much as from external sources of confusion. In many tantric mandalas, this aspect of separation and protection from the outer samsaric world is depicted by "the four outer circles: the purifying fire of wisdom, the vajra circle, the circle with the eight tombs, the lotus circle". The ring of vajras forms a connected fence-like arrangement running around the perimeter of the outer mandala circle.

As a meditation on impermanence (a central teaching of Buddhism), after days or weeks of creating the intricate pattern of a sand mandala, the sand is brushed together into a pile and spilled into a body of running water to spread the blessings of the mandala. External ritual and internal sadhana form an indistinguishable whole, and this unity finds its most pregnant expression in the form of the mandala, the sacred enclosure consisting of concentric squares and circles drawn on the ground and representing that adamant plane of being on which the aspirant to Buddha hood wishes to establish himself. The unfolding of the tantric ritual depends on the mandala; and where a material mandala is not employed, the adept proceeds to construct one mentally in the course of his meditation."

Conclusions:

12. Borobudur in its base is a regular square with 118-m sides.
13. Such layout is used in meditative practices of Hinduism and Buddhism to intensify processes of inner concentration during meditation.
14. The numbers 7, 72. were applied in the temple design and construction, which evidences the availability of relevant knowledge at that time.
15. No wonder, the temple complex is under UNESCO protection, i.e. it is not available for further studies.

16. If we look at Borobudur from above, we can see it represents a complete mandala.
17. The temple has 8 tiers: 5 square and 3 round ones. On the upper tier, there is the large stupa – a bell-shaped monument with a statue of Buddha inside.
18. Borobudur is situated approximately 2,439.85 km (1,516.05 miles) away from Angkor Wat.
19. If we look at mutual disposition of some ancient religious sites from the North Pole, interesting correlations may be observed.
20. At the upper tier there are 72 small bell-shaped, stupa-like towers located around the big central tower.
21. Between Chandi Mendut and Borobudur there is the small Chandi Pavon – at a distance of approximately 1,150 metres away from Mendut and 1,750 metres away from Borobudur. Disposition of the structures complies with the golden ratio.



A mandala and a yantra

22. Mandala in the form of a circle with an indication of a square and a point in the centre, and a four-sided pyramid with six steps and fourfold division;
12. Kali Yantra (translated from Sanskrit, “kala” means “time”; this word originates from the Indo-European root that means spinning; a word that is close in its meaning in Russian is “kolo”); in Hindu mythology it means cyclical creations and destructions of the Universe, rotation of time in the concept of rebirth of the Soul and of a subject of fate.

CHAPTER XII

Celestial Significance of Angkor Wat With rare paintings of the Temple



Legend behind Angkor: Angkor the most mysterious of temple mountains, has intrigued humanity from the day it was “discovered”. We have been trying to understand how it was constructed and how such a detailed design could be made as a drawing to start with and then brought into fruition by completing the construction within 40 years.

I have written 3 books on the Angkor DEVRAJA in which I have described in detail the construction design elements together with my co-author Srishti Dokfras who happens to be an Architect and also my daughter. We have worked together on 7 books and 167 research papers and articles. We recommend you go to [academia.edu](https://www.academia.edu) and [researchgate.net](https://www.researchgate.net) for some delightful readings of this book. You will also find a tome on the Borobudur temple there.



To start with let us examine the legend behind it.

The most widely accepted legend is that of a Brahmin prince by the name of Kaundinya who hailed from South India, married a Naga princess from this region and thus started the rule of the Somavansha or the race of the moon. This is supported by inscriptions found at Misan in Champa (present-day Vietnam). There are some other non-supported legends about a banished Hindu prince, who married a Naga lady, daughter of Nagaraja and established the kingdom of Kambuja (old name of Cambodia). Another legend holds that the union of Maharshi Kambu and the Apsara Mera symbolized the merger of the Solar and Lunar Dynasties that resulted in Kambuja. Ancient Indian civilization had expanded towards the east and had come into contact

with inhabitants of this area and thus was born the nation of Cambodia with Indic Influences (Hinduism and Buddhism).



Sandstones of Angkor

Structure: The height of Angkor Wat from the ground to the top of the central tower is surprisingly high-213 meters (699 feet). The height was achieved with three rectangular or square levels. Each one becomes progressively smaller and higher starting from the outer limits of the temple. Covered galleries with columns define the boundaries of the first and second levels.

The third and uppermost level supports five towers-one in each of the corners and one in the middle-which are the most prominent architectural feature of Angkor Wat. Graduated tiers, one rising above the other, give the towers a conical shape and, near the top, rows of lotus flowers taper to a point. The overall profile of each tower is reminiscent of a lotus bud.



Several lines stand out in the architectural plan of Angkor Wat. The eye is drawn left and right to the horizontal aspect of the levels and upward to the soaring height of the towers. The ingenious plan of Angkor Wat only allows a view of all five towers from certain angles. They are not visible, for example, from the main entrance. Many of the structures and courtyards are in the shape of a cross. A curved sloping roof on galleries, chambers, and aisles is a hallmark of Angkor Wat. From a distance the roof looks like a series of long narrow ridges but close-up one sees gracefully arched rectangular stones placed end to end. Each row of tiles is capped with an end tile at right angles along the ridge of the roof. The scheme culminates in decorated tympanums with elaborate frames. Several elements repeated throughout the monument give an architectural rhythm to the whole. Galleries with columns, towers, curved roofs, tympanums in sects of graduated sizes, structures such as libraries and entry towers in a cross-shaped plan, and steps and steps and steps occur again and again. By combining two or more of these features and superimposing them, height was achieved and one part of the monument was linked to another. Roofs were frequently layered to add height, length, or dimension.

A smaller replica of the central towers was repeated at the outer limits of two prominent areas- the galleries and the entry towers. Angkor Wat occupies a rectangular area of about 500 acres defined by a laterite wall. The first evidence of the site from the west is a moat with a long sandstone causeway stretching for 200 meters across it and serving as the main access to the monument. At the end of the causeway there is a massive entry tower consisting of three sections. The upper portions have collapsed and thus do not reveal the full impact of the original form. A long covered gallery with square columns and a curved roofs extends along the moat to the left and right of the entry tower. This majestic facade of Angkor Wat is a model of balance and proportion and is a fine example of classical Khmer architecture.

Visitors can easily miss the beauty of Angkor Wat at this point as they rush on to see the more renowned sight of the five towers-visible only beyond the first entry tower. As one passes through this tower, there is an even longer causeway of 350 meters bordered on each side by a low balustrade resembling the body of a serpent.

Straight ahead is the celebrated view of Angkor Wat-the symbol of unity that appears on the new Cambodian flag. Standing at this point one feels compelled to 'get to the wondrous group of the five domes, companions of the sky, sisters of the clouds, and determine whether or not one lives in a world of reality or in a fantastic dream'. Walk slowly down the causeway and take in the architecture along the way which gradually introduces the visitor to the style that culminates on the third level. Two buildings, so-called libraries, stand in the courtyard on the left and right of the causeway. These rectangular buildings usually occur in pairs outside the sacred enclosure. Their function is unknown but they may have served as a store rooms for offerings and sacred objects. The designation 'library' originated with French archaeologists who discovered scenes from a Hindu legend of the 'Nine Planets of the Earth' carved on the libraries. Because of the association with astronomy they interpreted this to mean that the building served a scholarly function and named it a library.

The modern name, Angkor Wat, means "Temple City" or "City of Temples" in Khmer; Angkor, meaning "city" or "capital city", is a vernacular form of the word nokor (នគរ), which

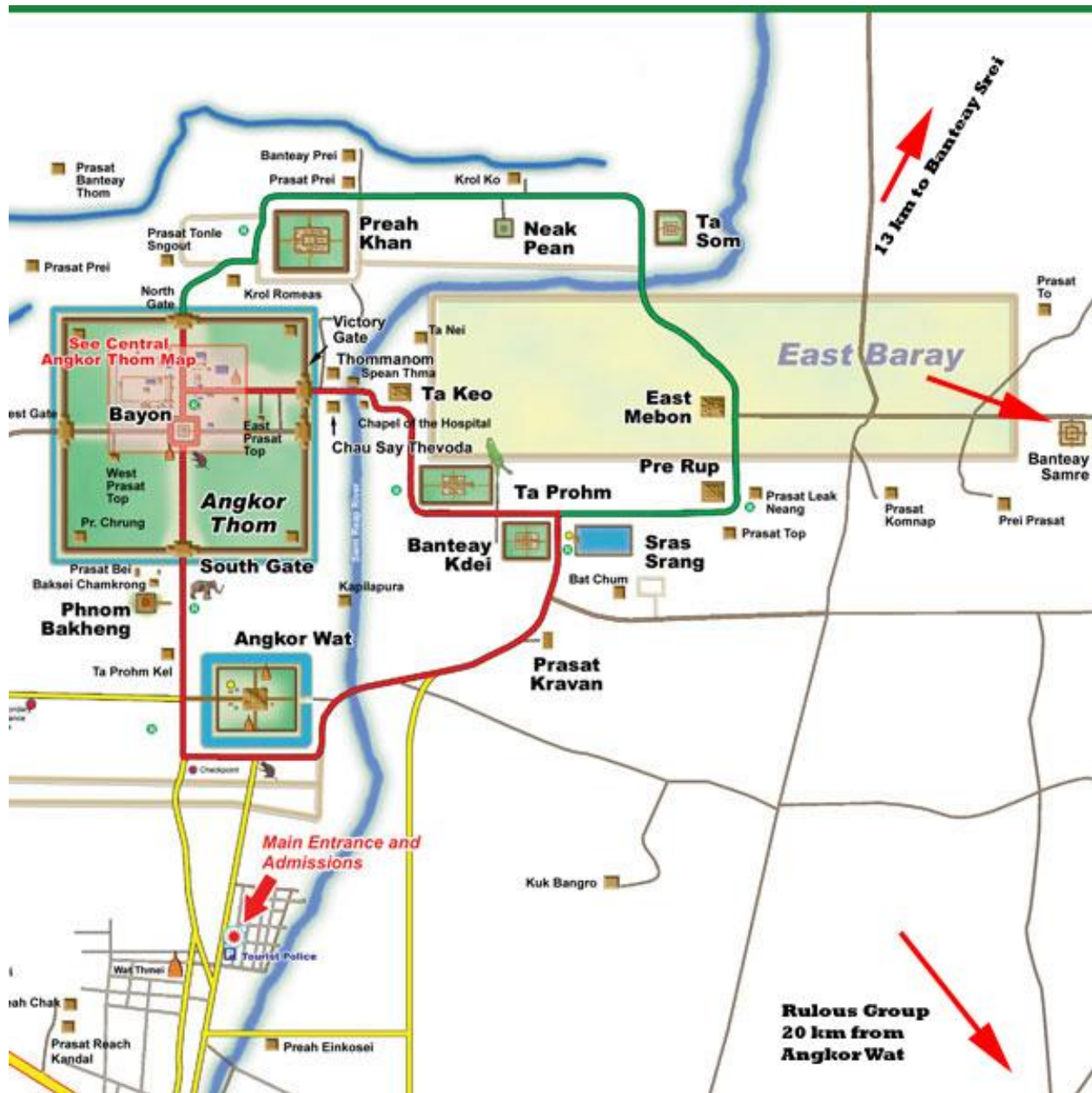
comes from the Sanskrit word nagara (नगर). Wat is the Khmer word for "temple grounds" (Sanskrit: वाट vāṭa "enclosure").

Religious architecture varies from culture to culture, as not all civilizations subscribe to the same religious beliefs. Even those that embraced the same religion as Christianity do not celebrate their beliefs in the same manner. Likewise, the architecture in their places of worship is unique depending on the aesthetics, cultural patterns, and the activities of the community.

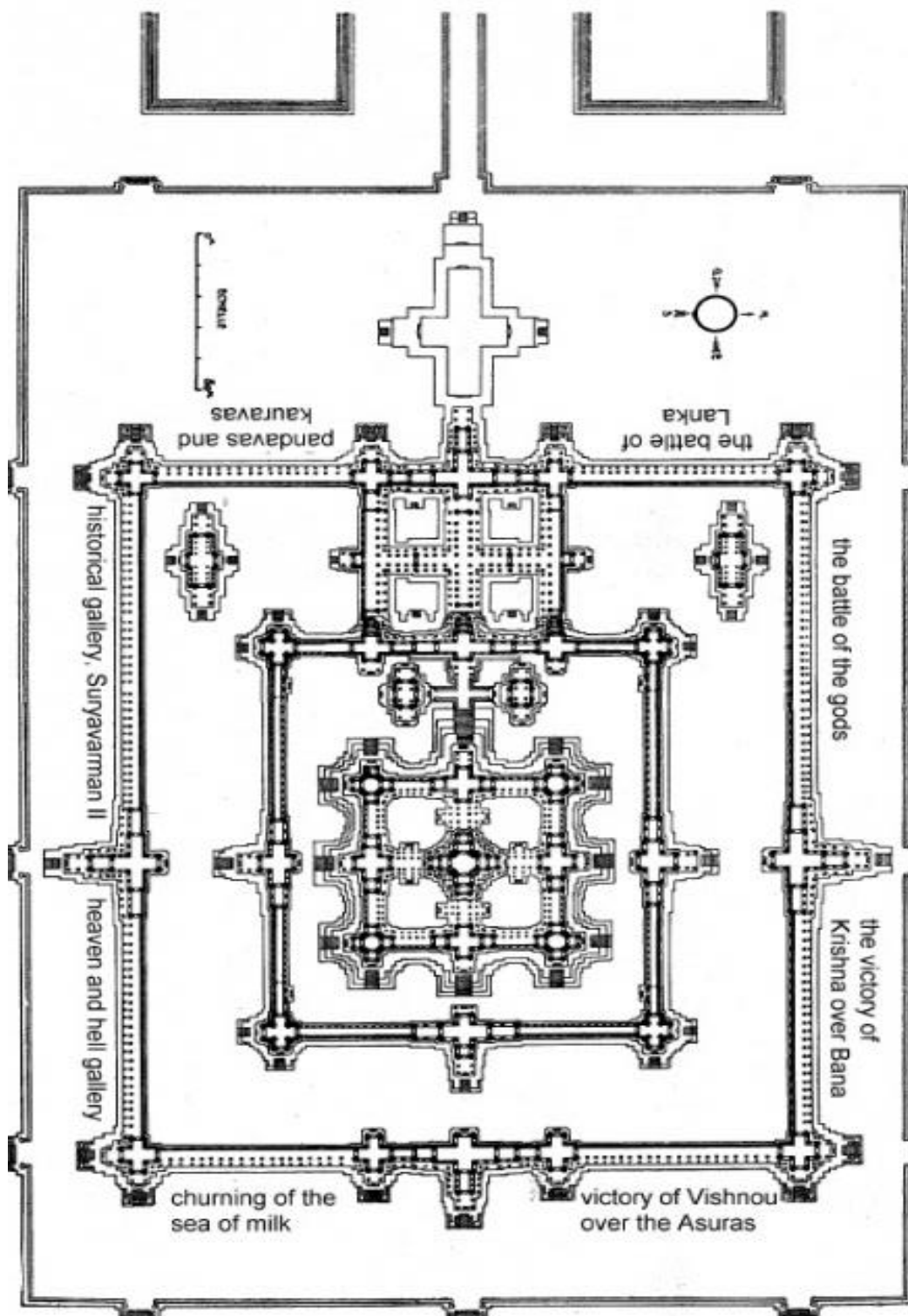
Religious Buildings, Structure, and Inclusivity.

Nowadays, religious buildings like churches and mosques are places where a whole community could come together and worship. This was not always the situation when it came to the ancient civilizations. Synagogues, mosques, temples, and churches held the images and important artifacts of their religions, but they were not open for public usage. The exclusivity of these ancient religions shows in their place of worship, which are commonly built for the extravagance of their deities and the entrance of religious personnel or persons of privilege.

For example, in India and ancient Egypt, religious structures can only be entered by priests as they are believed to be the residences of the deities themselves. While in Ancient Greece, people are allowed to glimpse the images of their deity; however, worship rites are only done outside the temple. In Mayan and Aztec culture, even a few prominent people in the community are allowed to approach their temple's immediate vicinity.



Even though a lot of mainstream religions today are communal and inclusive, only a few of the early faiths encouraged communal participation, and these are Islam, Christianity, Buddhism, and Judaism. The aspect of a whole community gathering can be reflected in these buildings.



Shrines and Funerary Art

Angkor Wat in Cambodia is believed to be the funerary **temple for King Suryavarman II**. It's an orientation to the west to conform to the symbolism between the setting sun and death.

Angkor which signifies “incredible city” was the capital of the Khmer Empire. Shrines are holy places that commemorate the life of a religion's founder, gods, saints, or deities. These buildings contain religious images and artifacts that are of significance to the faith and the god or person that the building celebrates. In the Christian religion, the most famous shrines are the Church of the Nativity located in Bethlehem which commemorates the life of Jesus Christ, and the lives of the Apostles and the early Church Fathers such as the famed St. Peter's Basilica in Rome.

Angkor Wat, located at 13°24'45"N 103°52'0"E, is a unique combination of the temple mountain (the standard design for the empire's state temples) and the later plan of concentric galleries. The construction of Angkor Wat also suggests that there was a celestial significance with certain features of the temple. This is observed in the temple's east-west orientation, and lines of sight from terraces within the temple that show specific towers to be at the precise location of the sunrise on a solstice..The temple is a representation of Mount Meru, the home of the gods: the central quincunx of towers symbolises the five peaks of the mountain, and the walls and moat symbolize the surrounding mountain ranges and ocean. Access to the upper areas of the temple was progressively more exclusive, with the laity being admitted only to the lowest level.

Angkor Wat, Siem Reap Overview

In Northern Cambodia lies one of the largest monuments in the world. Angkor Wat is a treasured Buddhist temple and the allure of the Angkor Archaeological Park. Located 6 kilometres north of Siem Reap, Angkor Wat is considered as the gateway to the ruins of Angkor. This temple is a national icon and source of pride for Cambodia, and is also proudly displayed on the national flag.

The city of Angkor in which lies the Angkor Wat temple was built in the 12th century by King Suryavarman II of the Khmer empire. The park is spread across an area of roughly 400 square kilometers, making it the largest pre-industrial city in the world. The park shouldn't be considered as just a collection of different temples and monuments. Angkor was a well-established city, and the temples were a part of that flourishing city. The main temple among them all was Angkor Wat, which has been rebuilt many times by different kings of the Khmer empire and later the kings of other dynasties according to their preferences. The ruins of Angkor feels like you've entered a completely different world where the lines of reality and fantasy have become blurred.

Angkor Wat History and Significance

Built between roughly A.D. 1113 and 1150, and encompassing an area of about 500 acres, Angkor Wat is one of the most significant religious monuments ever constructed. The temple was initially designed and built during the first half of the 12th century on the orders of the then emperor Suryavarman II. Originally a temple dedicated to Lord Vishnu, Angkor Wat gradually shifted from a Hindu center of worship to a Buddhist one in the 14th century. The original name is still unknown since no inscription or foundation stela was found from that time.

Angkor Wat temple has a 65 meters central tower which is surrounded by four smaller towers and a series of enclosure walls. The layout is similar to that of Mount Meru, a legendary place in Hindu mythology that is said to lie beyond the Himalayas and be the home of the gods.

One of the most exciting and mystical elements of the temple is the location. Angkor Wat is located at 13.41 degrees north in latitude and that the north-south axis of the central tower's chamber is 13.43 cubits long. Historians have debated that this location is not an accident. This location is along the axis of the earth, in the centre to be precise. In the central sanctuary, Vishnu is not only placed at the latitude of Angkor Wat, but he is also positioned along the axis of the earth. It was the knowledge that the Khmer people possessed at a time when the world was thought to be flat. This location is a marvelous example of how this civilization already knew that the earth was round.

Not just these, but the sophisticated geometry of the structures indicates that celestial significance was kept in mind while designing the temple. It perfectly aligned with the constellation Draco as it appeared in the sky during the spring equinox of the year 10,500 BC which is considered remarkable knowing that they had no assistance from advanced technology. In short, Angkor Wat is, arguably, the most spectacular temple you will ever see, on a scale you can't imagine.

The civilization in the Indian Subcontinent had been highly developed since ancient time. When trades became flourished between the East and the West, the Indian traders sailed to this region to establish Indian trading posts in order to collect goods and products during the off monsoon season. These traders brought with them their civilization, cultures, philosophy and religions. During those days, the indigenous people were far less civilized than the Indian travelers and it was not surprising to find that they accepted many aspects from their foreign folks by which they deemed to be better and beneficial.

Among these aspects were the religious and cultural elements of the Indian civilization. The natives adopted Hinduism as their religion and its gods Shiva and Vishnu were revered as their supreme gods. During the Funan period (I – IX centuries), which was a predecessor of the Khmer civilization, the Brahmins, a learned caste of India, were invited into the royal courts to help in administration. In addition to the religious belief, the natives also learned the engineering skills such as the irrigation system as well as stone carving from the Indian Brahmins.

When the Khmer civilization evolved in early 9th century, the Khmers inherited several elements from its precursor as well as those from the Indian civilization. Along with many other aspects of their culture, the Cambodians inherited Indian methods of architecture and then absorbed them into their own architectural style. Once the Indian influence on the kingdom was no longer significant, by the seventh to eighth centuries AD, Khmer architecture began to develop independently. It flourished under ambitious kings who ruled an empire rich in manpower and

wealth. Both these factors were essential in bringing about the larger building projects undertaken at Angkor in the 11th and 12th centuries.

Devraja: Khmers' first king Jayavarman II (800 – 850) introduced the cult of devaraja into Cambodia, establishing the king as a representative of the Hindu god Siva. His regime was more or less a model of the successful Indian monarchy. Numerous impressive temples and monuments were built throughout the empire during those successive centuries in order to praise the Hindu gods. From this time temples were being built to honor both the god and the king. During the next two reigns, the practice of each new king building his own temple, which became his tomb on his death, was firmly established (Angkor Wat). We collectively know these monuments as the Angkor Temples, and the most famous ones are the Angkor Wat and the Angkor Thom, both of which resided on the vast plain of Siemreap in Cambodia. The word “Angkor” is derived Sanskrit, an ancient Indian language, of “Nagara” which means “City”. Angkor Wat literally means “City of Temple” and Angkor Thom “The Magnificent City.”

Angkor Wat is the world's largest religious building and the finest of all the Khmer architectural wonders. It is but the most impressive and most perfectly constructed of numerous temples whose extensive ruins survive to form one of the world's largest historical sites. Taking 37 years to complete and involving the labor of an estimated 50,000 artisans, workers and slaves, the temple forms a rectangular enclosure measuring 1,500 meters by 1,300 meters and surrounded by a moat 200 meters wide. Inside the outer walls, the structure is built up over three levels rising to a central core topped by five distinctive towers, the tallest reaching 65 meters. The proportions alone are spectacular, while the long galleries feature walls decorated with low-relief scenes of epic legends, war and courtly life. All the temple mountains of Angkor were filled with three-dimensional images and every inch of the walls are covered by sculptures. Virtually every surface in a labyrinth of chambers and courtyards is richly decorated and

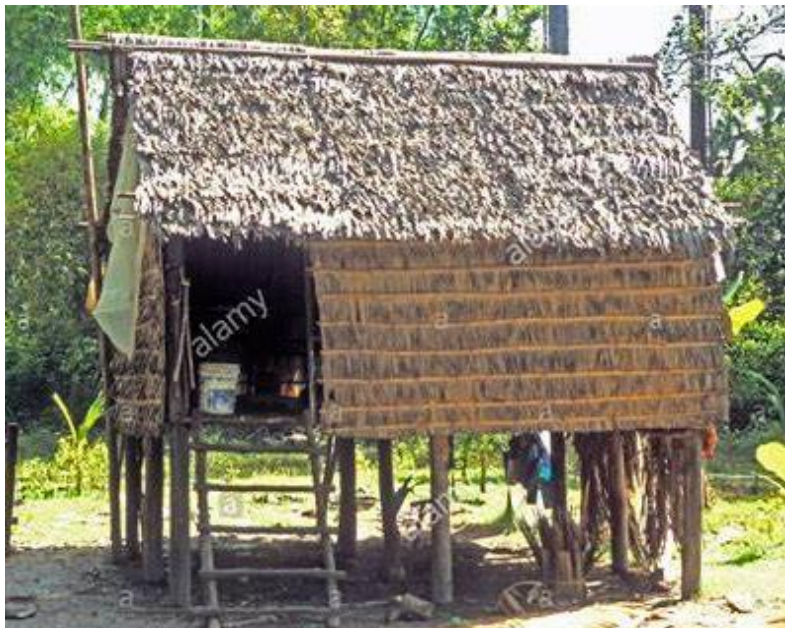
carvings of nearly 2,000 apsaras, or celestial dancers, appear like a visual refrain of a beautiful melody (Angkor Wat).

Angkor Wat complex spreads an area of some 400 square kilometers and there are more than 100 major archaeological monuments and numerous lesser remains. The lands where the city of Angkor stands were not chosen as a settlement site because of any pre-existing sacred importance, but rather for their strategic military position and agricultural potential. In time however, over the half-millennia of Khmer occupation, the city of Angkor became a great pilgrimage destination. Angkor Thom Temple was also significant in the evolution of Khmer architecture as the first temple complex. It is quadrangle of defensive walls totaling 12 kilometers that once protected the Khmer capital. It built in the late 12th and early 13th centuries by King Jayavarman VII. The walls are divided by two axes running north-south and east-west. A gateway lies at the end of each axis, four in total, facing the four cardinal directions. It was a well-planned and well laid out series of buildings surrounding several central shrines. These buildings were set around courtyards, and avenues linked each courtyard. The less important buildings were located at the outer edges of the complex, with the most important ones and the shrines in the center. The whole complex was surrounded by a moat.

Cambodians in ancient were superstition; thus, they built their buildings base on the legends they believed. According to Hinduism, the gods reside in the five sacred mountains with central Mount Meru and these mountains are surrounded by the cosmic ocean. The structure of the Khmer temples mostly symbolizes the heavenly residence of the gods with five towers, called prasats. The central dominant tower or prasat represents the Mount Meru with four smaller ones, each at its corners, to represent the other four sacred mountains of the heaven. In some temples, there are galleries connecting the towers. The moat surrounding the temple symbolizes the cosmic ocean. As the residence of gods, the temples were made up of more durable materials

such as the bricks, laterites and sandstones. Numerous stones were carved with artistic craftsmanship to portray the gods and the deities, the epics of Mahabharata and Ramayana, and in many instances, the important events of Khmer history as well as that of the king who was its founder. For the temples dedicated to Buddhism in the later centuries, the architecture is much less prominent with some stone carving related to the stories of Lord Buddha and his teaching.

The houses of the local people in ancient Khmer were more or less similar to those found today in villages of modern Cambodia. It was elevated about two and a half meters above the ground with the wooden ladder and was built by wooden piles, which supported the floor, the walls and the roof. The wall was made up of either the straws or the bamboo with the roof covered with the thatched leaves of dry coconut palms (Architecture). The architecture of the dignitaries' houses and the palaces was somewhat different from those of the laymen, and differed in sizes, layouts and dimensions. The materials used to build the house consisted of stronger wooden planks, generally made up of teakwood, and the roof was covered with tiles for the inner rooms and with thatched leaves for the outer corners. These differences clearly identified the classes of the people by which the laymen were not even dare to put up a single tile



on their roof.

The architectural vividness of Angkor was not separated from its engineering genius. In addition to the remarkable temples, the ancient Khmer also had showed its architectural genius by building large reservoirs and dikes, which were essential in agriculture as well as for the survival of the people. The two largest reservoirs were the East Baray and the West Baray. The former one, built during the reign of Yasovarman I, was 7 1/2 kilometer long and 1 km 830 meters wide with the depth of 4-5 meter. The latter was almost twice larger. These reservoirs collected the water from the nearby rivers through dikes and help significantly to prevent floods by collecting water from heavy rainfall during the Monsoon season. There were also smaller reservoirs; many ponds and moats, which were constructed in the vicinity of the various temples, and thus further helped in water storage. This water was used in everyday life of the Khmer people, and irrigated to the farmland during the dry season.

In so mastering the annual cycle of floods and drought brought about by the alternating monsoon seasons, the ancient Khmer were able to harvest two and even three rice crops a year. From this rich agricultural base Angkor built up its power. As Coedes has commented in *Angkor: An Introduction*, there is a vital connection between the regal power symbolized in the temple-mountain and the practical mastery of water. “The fact is well known,” the historian wrote, “that a rice-growing country is dependent upon a regulated system of irrigation which in turn is dependent on a strong and stable central authority. If the control breaks down, the water ceases to work its benefits, and abundance gives way to misery.” (Coedes). Bountiful crop production not only sustained a huge population perhaps as high as one million – it also freed large numbers of peasants from agricultural work. Manpower was thus available for extending and securing the boundaries of the empire and for building the massive stone temples of the god-kings (Angkor Wat). There was also extensive road system in ancient Angkor Empire during its peak. These

roads were built by raising the earth as the pavement, however, most parts of these roads were lost but some vestiges remain. The Angkor being at the center of the civilization had its roads branching out in all directions.

Multi towers: As the Khmer civilization reached its full flowering the temple form evolved from a single tower to a multi-towered structure of Angkor Wat and Angkor Thom. Moreover, while early shrines stood at ground level, later temples were grandiosely raised on terraced pyramids. Vaulted galleries were introduced to link individual sanctuaries into a single, intricate temple complex. Materials also evolved, from wood for the earliest prototypes to brick, laterite and finally sandstone, the last lending itself to the relief carving which defines Angkor's finest temples almost as distinctively as the architecture itself. These and other changes reached a climax at Angkor Wat.

Problems: There were, however, significant problems, which the architects had to overcome and some of their building methods contributed to the early collapse of their temples. Sandstone blocks were prepared carefully to fit together, but vertical joints were allowed to run on top of one another making walls very unstable. So, often a whole wall fell if one stone near the base became dislodged. No mortar was used; just a good fit, weight and gravity was thought sufficient. The Khmers never learnt how to build an arch. European architects who built the vaulted Gothic cathedrals used complex arches to cover a space, a technique that had been handed down to them from the Romans over centuries of development. The Khmers had no such example to copy. In order to overcome this difficulty, they used the false arch, or corbelling. Large stones were piled on top of one another, reaching inwards as far as possible and touching at the top. An arched roof over a space was thus formed, but it was not as stable as the real arch, and these vaults often collapsed (Architecture).

In the beginning of 1200, the Angkor and the Khmer empire started to decline. As neighboring states of the Angkor grew, they became a major threat to the empire. When Jayavarman VII died, the Thai Empire in the West emerged as a major power in the region. In order to protect the empire, the Angkor had to direct portion of its manpower to secure strong armed forces, which in turn, deprived itself from giving good maintenance to its irrigation system. The road network built by Jayavarman VII had aided the transports of products and trades throughout the empire and also facilitated the Khmer troops to quell its neighbors. It had become a double-edged sword when the Angkor became weak as the invaders could easily marched in through this road network, instead of previously sailing up from the Mekong River. This turned out to be true when the newly emerged Ayuthaya, a Thai kingdom in the West became stronger. They use this road to march to attack right at the heart of Angkor and finally sacked the empire in 1431. The glory of the Angkor Civilization was terminated since that time. The city was deserted and the capital was moved to Eastward to the region of the present capital Phnom Penh (Britannica).

Relics: , Angkor Wat, Angkor Thom and several other Khmer temples are undoubtedly the relics of the past Khmer Civilization. Angkor is prominent because of its temples, and these massive stone monuments that constitute the Khmer civilization's greatest legacy. Angkor represents one of humankind's most astonishing and enduring architectural achievements. Lawrence Briggs makes the point in his book *The Ancient Khmer Empire*. "The Khmers," he wrote, "left the world no systems of administration, education or ethics like those of the Chinese; no literatures, religions or systems of philosophy like those of India; but here oriental architecture and decoration reached its culminating point." (Briggs).

History and Significance of the Temple

Angkor Wat's original name in Sanskrit was Vrah Viṣṇuloka or Parama Viṣṇuloka which translates as "the sacred dwelling of Vishnu." Its current name of Angkor Wat was derived from the Khmer language, which means "City of Temples" or "Temple City." The temple is located

3.4 miles north of Siem Reap, a modern Cambodian town. Legends surround the origin of the temple. A Chinese traveler from the 13th century, Zhou Daguan, held the belief that the temple rose up in a single night due to the work of a deity. Other stories tell that the temple was ordered to be constructed to serve as a palace for Precha Ket Mealea, the son of Indra.

In light of these legends, historic annals record that the design and construction of the temple could be tracked back to the twelfth century under the reign of Khmer ruler, Suryavaman II from 1113 to 1150. The temple initially served as a temple to the Hindu god, Vishnu and then as the capital city and state temple of King Suryavaman II. During the late 12th century, Angkor Wat gradually converted into being a Buddhist temple and exists as a center for Buddhism up to the present time.

The Architecture of Angkor Wat

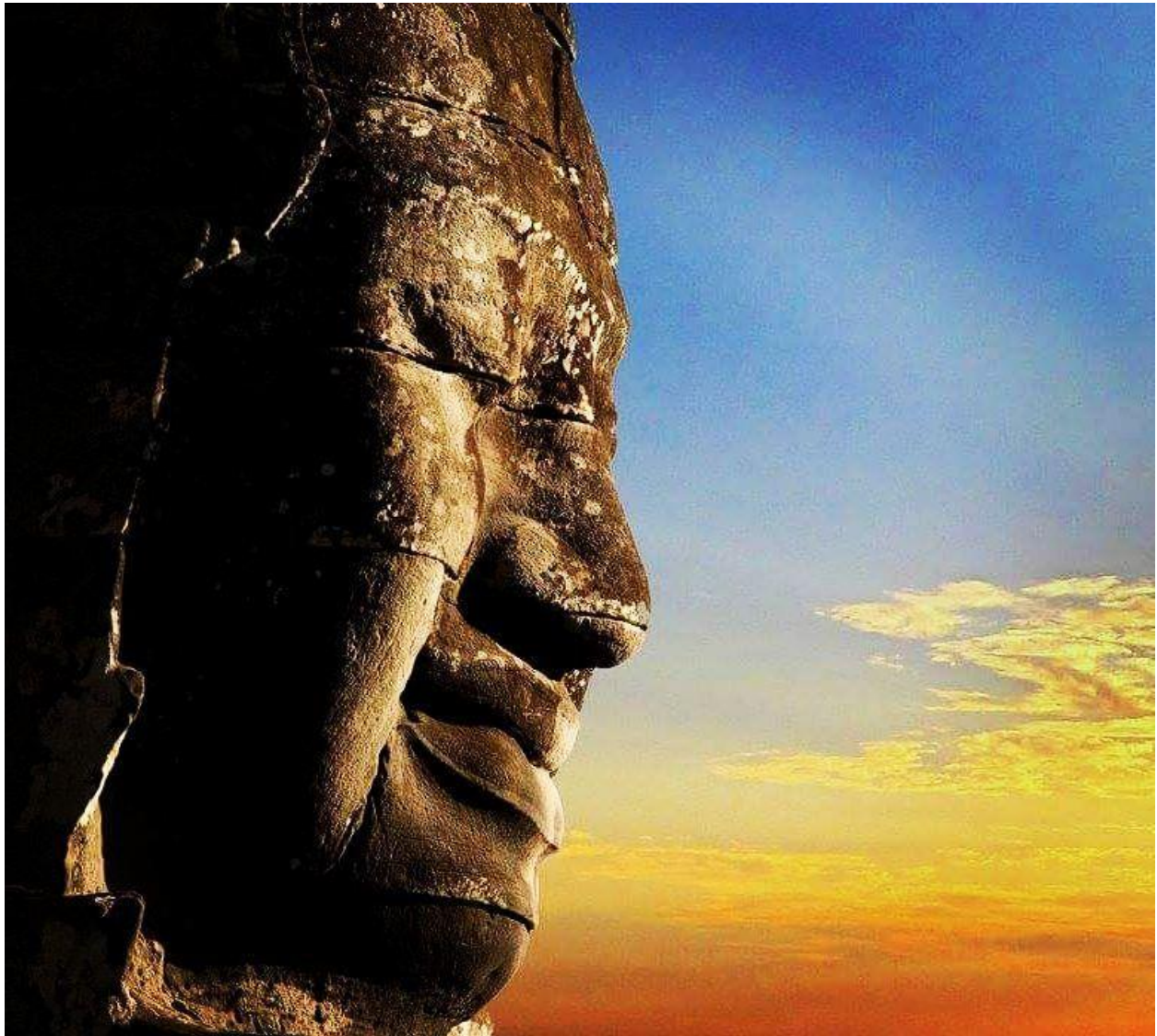
As a temple, Angkor Wat is a combination of architectural temple plans prevalent in Khmer culture. This includes the newer galleried temple and the temple-mountain structure. Locations of certain towers indicate important points during solstices, which suggests that the planning of the temple's layout was based on some significant celestial considerations.

The mountain temple of Angkor Wat is also considered to be a representation of Mount Meru. It is a five-peaked mountain that is of religious significance to Hinduism, Buddhism, and Jain cosmology. It is the center of the universe and considered to be the dwelling place of the gods. The parallelism with Mount Meru could be seen in the quincunx towers central to the temple which mirrors the five peaks of the mountain while the surrounding walls and Moat of the temple were made to represent the ocean and mountain ranges surrounding Mount Meru.

The decorative style of the temple also reflects Khmer architecture. Elements of this historic architectural style include towers shaped similar to lotus buds or the ogival towers; cross-shaped terraces along the main temple, and axial and half-galleries that connect to other areas of the temple. Decorative elements include narrative scenes and elaborate garlands in the temple pediments. Apsaras or devatas, the depiction of nymphs or heavenly female figures dancing, and bas-reliefs can also be found in the structures of the Angkor Wat.

Angkor Wat combines two basic plans of Khmer temple architecture: the temple-mountain and the later galleried temple, based on early Dravidian architecture, with key features such as

the Jagati. It is designed to represent Mount Meru,



home of the devas in Hindu mythology: within a moat and an outer wall 3.6 kilometres (2.2 mi) long are three rectangular galleries, each raised above the next. At the centre of the temple stands a quincunx of towers. Unlike most Angkorian temples, Angkor Wat is oriented to the west; scholars are divided as to the significance of this. The temple is admired for the grandeur and harmony of the architecture, its extensive bas-reliefs, and for the numerous devatas adorning its walls.

Historical Significance

The Angkor Wat served as the capital of the Khmer Empire, and also a strategic military post.

With curiosity the original name of the Angkor Wat is unknown, Historians have been unable to locate any artifacts or inscriptions that refer to the temple complex by its name.

Large amounts of the Angkor Wat remain unfinished, though due to historian research and theory it is thought that construction stopped when Suryavarman II died.

Cultural Significance

Suryavarman II greatly respected the god Vishnu, a god often painted and seen as a protector, so Suryavarman II installed a statue of the god Vishnu in Angkor Wat's central tower. This devotion can be seen as one of the most remarkable reliefs at the Angkor Wat, with the god located in the southeast of the temple. This relief shows a chapter in the Hindu story of the creation known as the 'churning of the sea of milk'

Bayon-Historical Significance

There was originally 49 towers standing but today only 37 are standing.

Most towers have four carved faces on each cardinal point, though there are some with three faces or even two.

The Bayon has had several architectural changes, this is because the city of Angkor Thom was so well fortified that later kings realised it would be easier to re-model the Bayon instead of removing it and creating their own state temple which would have been in the exact same place (at the centre of the city).

Bayon-Cultural Significance

The temple is very complex when it comes to structure and meaning, having it passed through different religious phases from Pantheon of the Gods, Hindu Worship and Buddhism.

This is one of most enigmatic and powerful religious structures in the world.



Cosmological Connection

Perhaps the most striking characteristic of Angkor Wat is that it perfectly aligns with the constellation Draco as it appeared in the sky during the spring equinox of the year 10,500 BC. Many speculate at the significance of this and how it could have been accomplished in an age without assistance from advanced technology, but it is an undeniable fact that Angkor Wat was constructed to fit harmoniously with the world surrounding it. The overwhelming level of sophistication within the temple geometry shows that its builders hoped to create a deeper connection with the universe through what they believed to be sacred numerology. Angkor Wat was not built out of the vanity of a dictating leader, but instead was made as a tool to help people make a tangible connection with divinity. Each measurement is connected to each other measurement based on ancient astrological observations, and it has even been postulated that Angkor Wat could be a sort of highly sophisticated calendar or cosmic clock.

The mysteries of the complex at Angkor Wat have puzzled man for generations, and it will continue to draw attention as more people attempt to spread the word of its incredible secrets in the hopes that the truth will be exposed. The whole city of Angkor was said to have been built as a colossal diagram of precession to embed specific astronomical numbers and constants. One of these “cosmological myths” portrayed at Angkor is the famous *Churning of the Sea of Milk*. It

covers a bas-relief almost 50 meters long inside Angkor Wat's eastern gallery. 92 Deva and 88 Asura (*for a total of 180 figures*) pull the serpent *Vasuki* for one thousand years around Mount Mandara, which serves as the axis of the World and (*according to Santillana and Von Dechend*), the ecliptic North Pole around which the constellations revolve as a consequence of precession. More recently, the Angkor expert Eleanor Mannikka has pointed out that even the division in 92 Deva and 88 Asura very accurately marks the number of days between the Winter solstice and the Spring equinox in March and the number of days between the Summer solstice and the equinox respectively. Also, the whole of Angkor Wat would have functioned as a giant calendrical clock, providing a 3-days warning of the Spring Equinox: An observer along the Western causeway would have seen the sun rising exactly on top of the central tower of Angkor Wat on each of the 3 days preceding the Equinox and then on the Equinox day from a different position moved more towards the center of the platform. Similarly, the lateral towers of the Western gateway would have served as solstitial markers for an observer located right outside the bridge main entrance.



While this can certainly be no coincidence, the ancient builders of Angkor Wat also embedded a wealth of astronomical information in the main dimensions of their temples. The main axial measurements of the temple as taken from the moat and along the western causeway yield, with almost exact precision, the values of the Hindu cosmological cycles of 432,000; 864,000; 1,296,000; 1,728,000 years (*here expressed in Khmer cubits of 43.54 cm*). Also, the sum of the lengths of the axes of the perimetral wall of Angkor Wat (*divided by 12*) yields a length of 365.24 cubits, which is the same as the length in days of the solar year. The same figure for the outer encircling wall (*divided by 24, as the number of lunar half-phases in one year*) yields 354.36 cubits, which is the length (*in days*) of the lunar year.

According to another scholar, the historian and mathematician Shubash Kak, Angkor Wat consists of at least three astronomical and architectural units which are part of single giant cosmic diagram .

1. The central sanctuary (*that is Mount Meru*), symbolizing the celestial North Pole, the Earth axis and the spring Equinox

2. The outer corridors and concentric galleries, which symbolize the ecliptic and the Earth's and planetary orbits, the cycles of the moon, the constellations and the solar and lunar years
3. The four axes of the temples, which represent the cosmic ages and the cycles of time.

The most strikingly astronomic monument is however located a mere hundred meters from Angkor Wat, on the mountain *Phnom Bakheng*. It is a 5-tiered pyramid, 76 meters wide at its base, surmounted by 4 towers and a central sanctuary. A total of 104 smaller towers stand on the lower terraces, which add up to 108 once the 4 towers on the top are added. This makes 27 towers on each side, the same as the number of days in a lunar month. In turn, the lateral towers and the central sanctuary mark the position of the Sun at the two Solstices and at the Equinox. Of the 60 towers that stand on the upper 5 terraces, there are 12 on each terrace, the same as the number of years in the Jupiter cycle, considered the base of the Khmer sacred calendar. Not surprisingly Phnom Bakheng has been described as *an astronomic calendar in stone*. But the same may be said of other famous Angkor monuments, such as the *Bayon*, with its 54 towers, and the *Pre Rup*, which also contains a total of 27 towers.

Moving further into the field of Earth-Sky analogies, independent researchers Jean-Pierre Lacroix and Robert Bywater believe they have found proof of gigantic planetary diagrams on the ground of Angkor, modeled after ancient Hindu astronomic systems. The theory of Lacroix and Bywater is too complex to be treated in sufficient detail so only the outline will be given here. It is *“a theory about the relationship between the locations of the principal Khmer monuments (and in many instances their orientation and internal measurements) and components of enormous Indian planetary diagrams “drawn virtually” on the Angkorian ground using the parameters of the “Midnight System”.*

The *“midnight system”* is in fact one of two geocentric models proposed by the Hindu astronomer and mathematician Aryabhata in the early 6th Century AD. The model allows to predict with a high degree of accuracy the exact position of the inner and outer planets (*including that of the Sun and the Moon*) on a specific date, based on the intersection of a circle called *deferent* (centered on the observer) and a combination of two epicycles called *Manda* and *Sighra*. The two authors believe they have found proof of the knowledge of the *“midnight system”* by the ancient Khmer in an inscription from the temple of Banteay Srei referring to the

position of the planets during a highly significant planetary alignment that was recorded by Khmer astronomers on the midnight of April 22nd, 967 AD. On that date the planets were clustered around the same portion of the night sky within the *Pisces* constellation as they were at the beginning of the Kali Yuga – *the last cycle in Hindu cosmology* – which supposedly began on February 17th, 3,102 BC. The origin of this planetary model may indeed be extremely ancient, as it is found already in pre-Vedic inscriptions and astronomical recordings from the Harappan culture at Harappa and Mohenjo-Daro.

The ancient Khmer, however, did not clearly limit themselves to recording astronomical dates, but wanted to portray them through colossal diagrams on the ground as part of their own sacred geography. Astonishingly, Lacroix and Bywater believe that “*The Khmer kings moved their successive capitals across Cambodia for various political reasons, but we suggest they wanted also, in some cases, to obey the rules of sacred geography related to planetary diagrams or, conversely, to use a new location to create or complete a planetary diagram*”; thus providing an explanation for the unexpected surge in building activity that characterized the beginning of the Khmer empire. According to the two authors, this set of planetary diagrams that covered the whole of the ancient Khmer empire, were brought to light by temples built on key locations, which in turn “*reveals capacities, in the fields of astronomy, land-surveying and cartography, which exceed by far the know-how and accuracy previously attributed to Middle-Age scholars*”.

By establishing their prime meridian across the sacred mountain of *Phnom Bakheng*, the ancient Khmer were able to carry out a comprehensive survey of their vast empire, locating cities and monuments according to a celestial design. As an example, the two authors cite the anomalous orientation of the ancient site of Preah Khan of Kampong Svay, which is oriented 28° East from true North. This is along the same orientation of a line connecting the center of the *Sighra* epicycle used to describe the position of Saturn with an imaginary observer located on the hill of Phnom Bok nearby Angkor. Also, when measurements are taken using the *krta yuga* of 752.46 meters as the ancient Khmer land surveying unit, the distances between the neighboring as well as the more distant sites surprisingly yield exact integer numbers which are multiples of the main planetary dimensions and the measures of the epicycles.

Quincunx: Quincunx patterns occur in many contexts:



The flag of the Solomon Islands features a quincunx of stars. A quincuncial map. Cosmatesque pavements with the quincunx pattern

- In heraldry, groups of five elements (*charges*) are often arranged in a quincunx pattern, called *in saltire* in heraldic terminology. The flag of the Solomon Islands features this pattern, with its five stars representing the five main island groups in the Solomon Islands. Another instance of this pattern occurred in the flag of the 19th-century Republic of Yucatán, where it signified the five departments into which the republic was divided.
- In architecture, a *quincuncial plan*, also defined as a "cross-in-square", is the plan of an edifice composed of nine bays. The central and the four angular ones are covered with domes or groin vaults so that the pattern of these domes forms a quincunx; the other four bays are surmounted by barrel vaults. In Khmer architecture, the towers of a temple, such as Angkor Wat, are sometimes arranged in a quincunx to represent the five peaks of Mount Meru.
- A quincunx is one of the quintessential designs of Cosmatesque inlay stonework.

The colossal complex of lotus bud-shaped structures form a quincunx at the heart of the temple, creating a visual arrangement that resembles the home of the Hindu Gods- Mount Meru. This sacred abode is known to Hindus, Buddhists, and followers of Jainism as the true center of the spiritual and physical universe, around which the sun and planets are said to orbit.

Aspects of Angkor Wat seem to have a directional and proportional significance, hinting at a very sophisticated architectural scheme. The anterior face of the temple had a western orientation, diverging from the traditional Khmer building method which favored orientation to the east. The Western orientation of architecture symbolizes the underworld in Greek and Etruscan cultures, giving substance to the possibility of a similar association taking place at Angkor Wat.

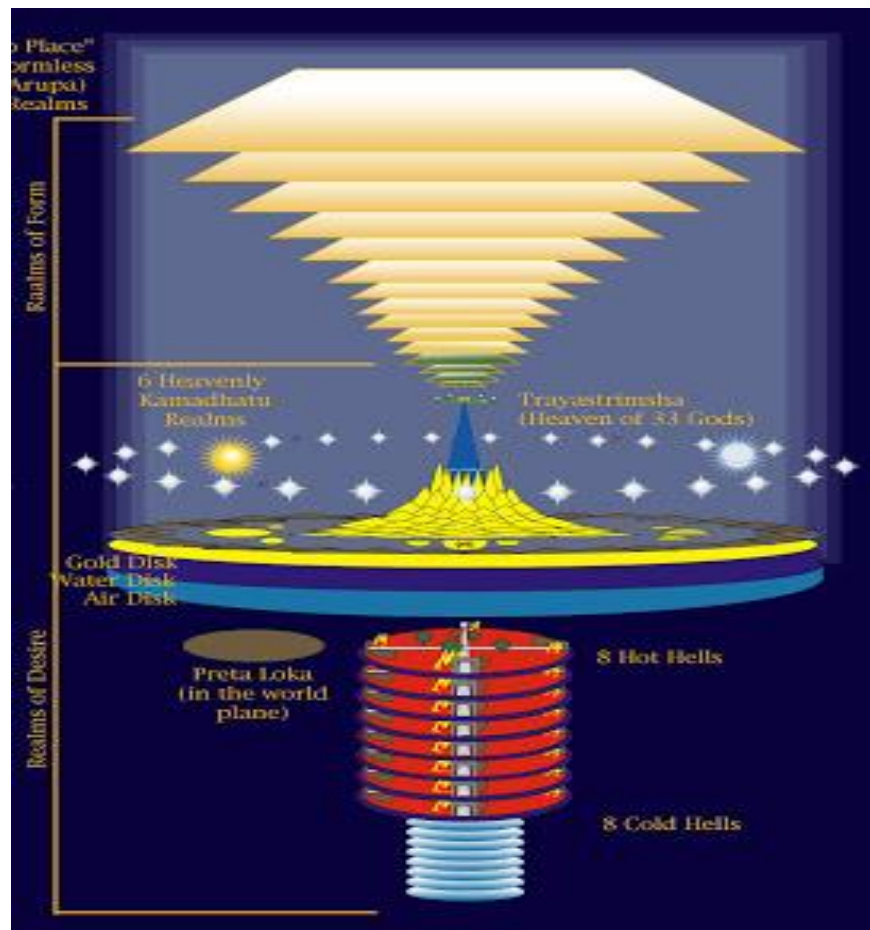
Furthermore, bas-relief sculptures were arranged along the chambers and passageways of the temple, depicting stories that proceed in a counter-clockwise fashion- a reverse order which hinted at the rituals of a Brahminic(Hindu) funeral. This motivated many academics to infer that Angkor Wat was used as a funerary temple for Suryavarman II.



Crowd waiting for sunrise during the equinox at Angkor Wat temple

Equinox, an astronomical event that marks a change in season, is the time in which the sun passes over the **celestial equator** causing the length of night and day to be roughly equal. In the northern hemisphere vernal equinox marks the beginning of spring while autumnal equinox marks the beginning of autumn. Vernal equinox is usually celebrated in March while autumnal equinox in September. In the southern hemisphere, it is the other way around.

Mount Meru: In the middle of the earth, surrounded by cosmic oceans, sits mythical mount Meru--840,000 miles high and home of the gods. The stars, planets, and even the earth itself revolve around it. Here is a diagram showing Mount Meru with the heavens above, and hells below.



These two details, for example, is from a 50-meter long depiction of the epic battle of Kurukshetra--a battle between two sibling clans for the throne of Hastinapura. It is believed that the battle took place around 3067BC in the modern state of Haryana, India.

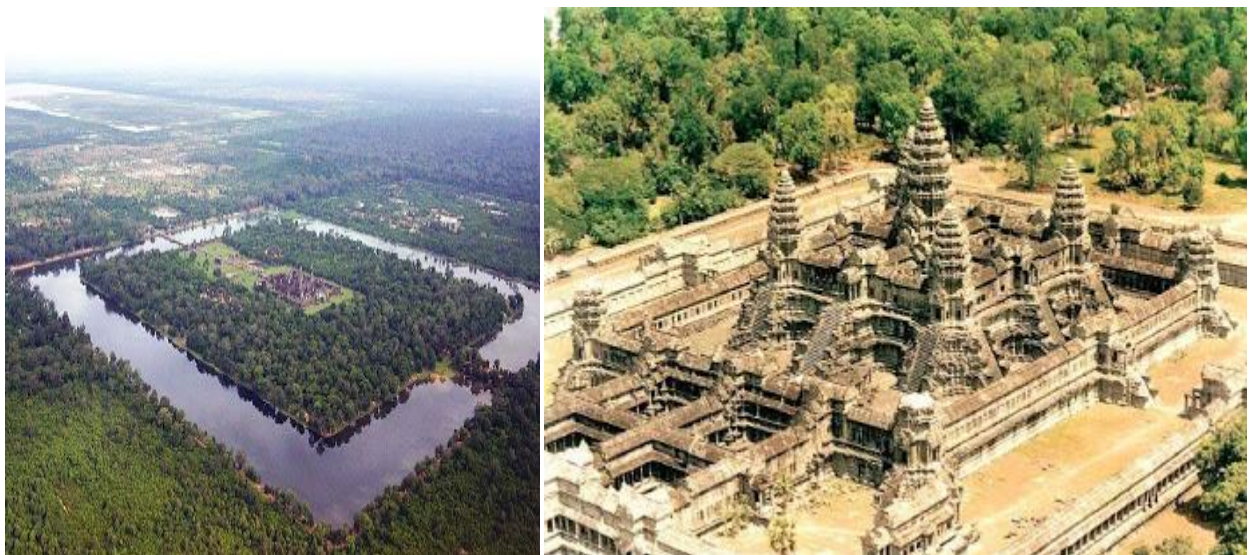


Here, for a sense of scale, is the full length of panels.



Phnom Penh

The mountain appears in many Hindu myths, and is the model for the temple-city of Angkor Wat. The city's 200m wide moat is said to represent the cosmic oceans, and the steep, many-



Surrounding the temple are galleries with long bas-relief carvings depicting scenes from Hindu mythology and the city's history. They don't make very dramatic photos (at least, not for me), but contain innumerable interesting small depictions.



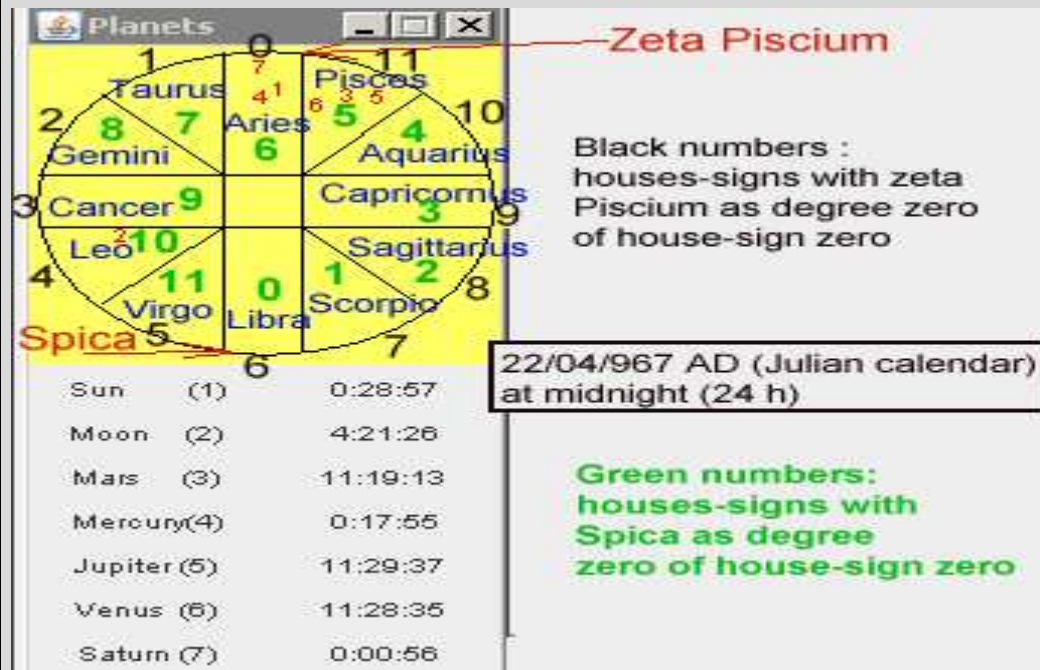
A set of interconnected planetary diagrams covering the Ancient Khmer Empire and brought to light by temples built on key locations reveals capacities, in the fields of astronomy, land-surveying and cartography, which exceed by far the know-how and accuracy previously attributed to Middle-Age scholars.

As a matter of fact, the locations provided by the inscription are **fully correct if we suppose the degree zero of the first house-sign was Spica instead of zeta Piscium**. It is worth remembering the Indian (and the Khmer) used to measure the « ayanamsa » ie the difference of ecliptic longitude between the vernal equinox and the star used as degree zero of their zodiac. These stars were either **Spica or zeta Piscium**.

By using Spica (the house numbers become those written in green colour in figure):

- **Sun, Mercury and Saturn** in house-sign **6** (**Aries** is house-sign 6 if Spica is degree zero).

- **Mars, Jupiter and Venus** in house-sign **5** (**Pisces** is house-sign 5 if Spica is degree zero).
- **Moon** in house-sign **10** (**Leo** is house-sign 10 if Spica is degree zero)



The basis of this research is the **stanza XLIV** of the inscription carved on the stele discovered in the fourth enclosure's gopura of the Banteay Srei temple. We are able to demonstrate the stanza provides the houses-signs where the planets, the Sun and the Moon were located on 22 april 967 CE (Julian calendar) at midnight (24 h) although the indicated locations are not, at first sight, compatible with the year when the temple was consecrated. The « Siddhantic » software (HIC), created by Lars Gislén Calculates the following locations (figure here below) :

- **Sun, Mercury and Saturn** (red numbers 1, 4 & 7) were located in the house-sign **0** (numbers written in **black** colour in the figure). With zeta Piscium used as degree zero (usual convention), the three objects were crossing, roughly, the **Aries** constellation.

)

It is worth remembering the houses-signs were numbered **from 0 to 11**.

(F.G. Faraut : « Astronomie cambodgienne »)

- **Mars, Jupiter and Venus** (red numbers 3,5 & 6) were located in the house-sign **11** which corresponded to **Pisces**.

- **The Moon** (red number 2) was crossing the house-sign **4** which corresponded to **Leo**

Those locations are confirmed by modern software.

The stele's inscription provides houses-signs which don't correspond to the month (nor to the year) of the temple's consecration (22 April 967):

- **Sun, Mercury and Saturn** are described to be in house-sign **6** (at first sight **Libra**).

- **Mars, Jupiter and Venus** are described to be in house-sign **5** (at first sight **Virgo**).

- **Moon** is described to be in house-sign **10** (at first sight **Aquarius**). (more precise data provided by

<http://ancientcartography.net/22-04-967-midnight-4.pdf>

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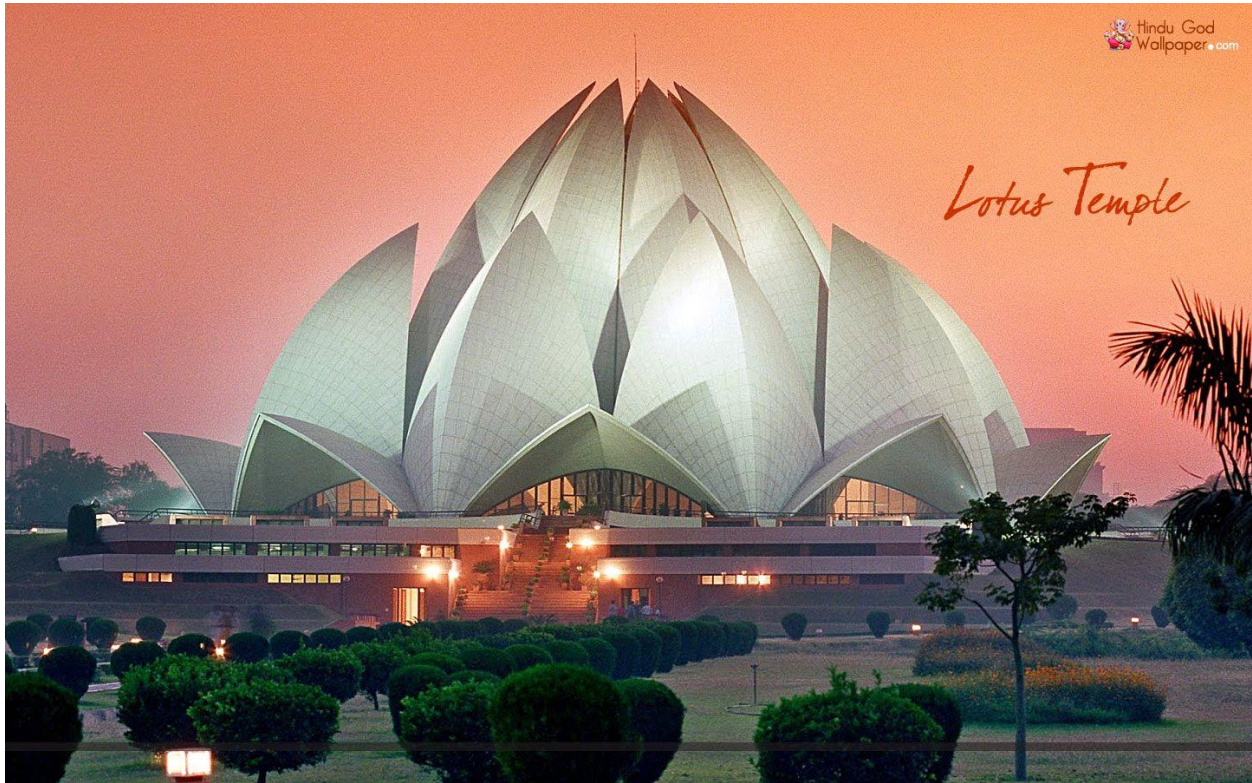
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Belt of an Apsara

CHAPTER XIII



Spiritual signification of Lotus flower in Chakras and Kundalini

In Yoga Sastras, Kundalini is the energy which resides in Mooladhara (Root) Chakra, in the form of elephant which is sleeping with its trunk folded. This is where Ganesha resides in our body. When a yogi manages to awaken kundalini, it travels up the spine through other chakras and reaches Sahasrara (crown chakra). Lotus represents the highest level of consciousness, where enlightenment and purity dwells. In the postures of hatha yoga, padmasana (the lotus position) is assumed by those determined to reach for the highest level of consciousness, where crown chakra is activated and Lotus petals of that chakra open up. Sahasrara chakra, the last in the Path of Activation of Spiritual Energy (Kundalini yoga) is also called *Sahasradal* (1000 petaled Lotus). Just 20 out of 1000 petals, when activated in a human body, made a man into Swami Vivekananda. Sapta Rishis like Vasishtha have activated 100 petals out of 1000. Spiritual experience arising from the lotus, that is from the energy of creation is called Brahma. The lotus in Lord Vishnu's hand symbolises that he can endow the highest spiritual experience from the

Path of Yoga. Vishnu offering 1000 lotus flowers to Lord Siva indicates that he crossed 1000 levels of himself spiritually.

Hindu temple is not the abode of God but the form of God and since it was strictly suggested to be the microcosm of cosmos, all Hindu temples have the common basic characteristics along with some unique features. These unique features of Hindu temples, exhibited fractal properties and complex form, act as the signature of Hindu art and architecture. Modern architecture lacks fractalness and complexity, and carries the “simple and brute forms.” There has been a ‘paradigm shift’ in the contemporary architecture where “fractals, wave forms and the structure of the cosmos is being resonated with the new buildings which indicates the replication of Hindu temples but in a different way. Hindu temples evidence the deep relationship between the fractal geometry and the deepest truth, which is being rediscovered in the contemporary architecture. Thus, the ‘past’ present in the future and ‘future’ contained in the ‘past’. However, temple architecture was not strongly influenced by the modern architecture and continues its strong and strict guidelines of design by reflecting traditional fractal properties. Perhaps, Lotus temple (1986) in Delhi for the Baha’i communities is an exception that sheds a new light of the possibility of using the fractal geometry wrapped by modern form, of course by achieving its religious, philosophical and functional requirements. After coining the term ‘fractal’ and setting up some mathematical formulas, now it has a great possibility to experiment about the refining of conventional temple-form or searching for new form of complexity related with Hindu cosmology with the consideration of ritual guides. The decline of using the fractal geometry in modern architecture became soon eradicated by the strong affection towards the chaos and complexity in contemporary architecture. For searching the new, complex, fractal and chaotic forms in the contemporary architecture, on the one hand, manual experiments of architectural elements with the fractal geometry are extensively practiced. On the other hand, by adopting the theories of folds, fractals, chaos, complexity and algorithms, ‘computer architecture’ has been developed that translates the theories into the architecture [13]. 22 Accordingly, the fractal geometry not only analyzes ¹

Site ²

The appropriate site for a temple, suggest ancient Sanskrit texts, is near water and gardens, where lotus and flowers bloom, where swans, ducks and other birds are heard, where animals rest without fear of injury or harm. These harmonious places were recommended in these texts with the explanation that such are the places where gods play, and thus the best site for Hindu temples.

The gods always play where lakes are,
where the sun’s rays are warded off by umbrellas of lotus leaf clusters,
and where clear waterpaths are made by swans
whose breasts toss the white lotus hither and thither,

where swans, ducks, curleys and paddy birds are heard,
and animals rest nearby in the shade of Nicula trees on the river banks.

The gods always play where rivers have for their bracelets
the sound of curleys and the voice of swans for their speech,
water as their garment, carps for their zone,
the flowering trees on their banks as earrings,
the confluence of rivers as their hips,
raised sand banks as breasts and plumage of swans their mantle.

The gods always play where groves are near, rivers, mountains and springs, and in towns with pleasure gardens.

— *Brhat Samhita* 1.60.4-8, 6th Century AD

The Infinite Lotus

The Lotus is ubiquitous in the iconography and literature of India. Exploring the diverse contexts in which it is used throws light on its very deep significance and convergence of meaning.

The Cosmic Wheel

These terms translate to “one who adores the lotus, one who holds the lotus in her hands, one with lotus eyes, one who has the beauty of the lotus, one who is born from the lotus, one with the lotus face, one who is beloved of the lotus-navelled one (*Padmanābha* or *Vishṇu*), one who wears a garland of lotuses, one who is symbolic of the lotus, one who has the fragrance of the lotus”. This conveys not only the immense delight of the poet in visualizing the goddess but also a remarkable conception of infinity.

To understand this, we need to isolate the term “*Padmōdbhavām*” (the one who is born from the lotus). If Lakshmi is born from the lotus, how is the same Lakshmi holding the lotus in her hands? This cannot be reconciled until we realize that this image is a fractal, endlessly expanding with each reference to the lotus. Central to this conception is the term *Padmanābhapriyām*, which invokes the dual image of Lakshmi with Vishnu, both symbolized with the lotus. Vishṇu is termed *Śrinivāsa* or *Lakshmī-nivāsa*, i.e, as the one who resides in Lakshmi. In turn, Lakshmi is referred to as *Vishṇu-vaksha-sthala-sthitā*, i.e as the one who sits on the chest region of Vishṇu. The word *Padmanābha* itself has two meanings, as explained by Ādi Shankarāchārya in his *Bhāṣya* (commentary) on the *Vishnu Sahasranāma* :

sarva jagatkāraṇam padmam nābhau yasya saḥ
the one in whose navel is the lotus which is the origin of the universe

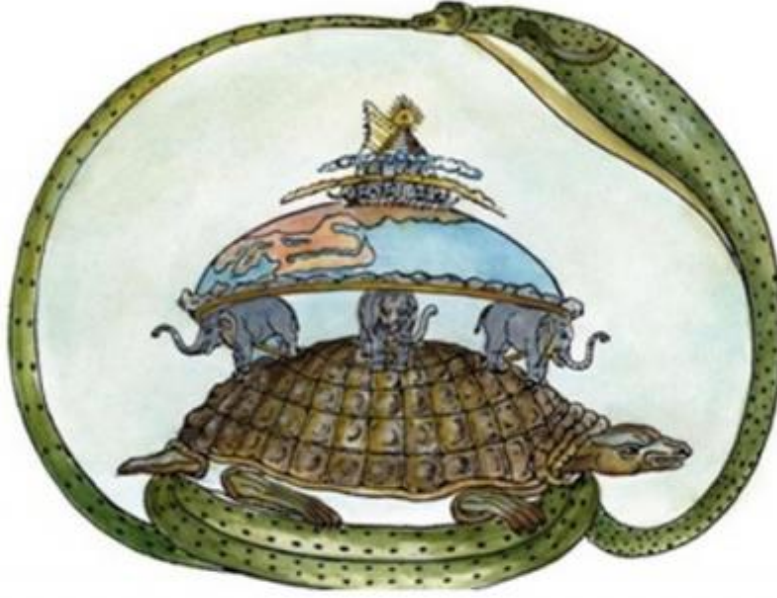
padmasya nābhau madhye karṇikāyām sthitāḥ
the one who resides at the center of the navel, or the seed pod, of the lotus.

As invoked in the image of *Ananta Padmanābha* in the temple at Tiruvanathapuram, these two meanings of *Padmanābha* encode the germination of *Vishṇu* and the lotus from each other, which is *Ananta* (unending).



[The lotus ceiling of the Jain temple in Ranakpur. The lotus at the centre of the wheel depicts the infinite potential of consciousness.]

Most people have a rather simple understanding of infinity, imagining it as a very big number, bigger than anything one can think of. Jains termed this notion as *asamkhyāta* and called it still finite, and contrasted it with the infinite termed as *ananta*. For a large part of human history, a thousand was such a number and used as a practical placeholder to denote infinity. The Romans did not even have a symbol or word to denote numbers higher than a thousand. The modern mathematical symbol for infinity, known as the *lemniscate* ($\infty = \text{CIC}$ or COC) is a stylistic rendering of thousand in Roman numerals. Indeed, in a similar manner, the word *Sahasra* (thousand) was also used in India. The *Purusha Sūkta* conveys the infinite scope of the cosmic *Purusha* with the terms *Sahasrāksha* and *Sahasrapāt* (possessing a thousand eyes and a thousand limbs). This understanding is elaborated by terms such as *Padmāksha* (possessing lotus eyes), *Padmahasta* (possessing lotus hands) and *Charaṇapadma* (lotus feet). Why did the lotus become the symbol of choice in India for infinity?



[Adisēsha as Ouroboros: The snake is shown to support the turtle (Kūrma) who is nothing but Vishṇu, who in turn supports the four elephants of the four directions, who in turn support the earth, at the centre of which is the Mēru mountain, which represents a person's consciousness.]

Indeed, Indians used many symbols to denote infinity: an endless knot (that appears in many variants from Indus-Sarasvati civilization to the *Rangavallikas* that grace Indian homes today), an endless tree that produces itself (*Kalpavṛksha*, *Yddgrasil*), an endless snake that supports the universe, sometimes depicted as biting its own tail (*Ādiśēsha*, *Jörmurgrandr*, *Ouroboros*). Some of these symbols travelled across into other cultures. The loop here pictorially represents a recurrence relation e.g, $f(n) = f(n)+1$, a definition that endlessly betters itself, and thus apt for describing infinity. But not all loops are identical. Differentiating between these loops is a computational problem, which is first recognized by the genius of Pāṇini's rules for Sanskrit grammar. In a most compact manner, these rules encode the infinite variations of language. Similar to how any object placed in between two mirrors creates endless copies of itself, the rules of Pāṇini reflect a given word into potentially endless variations.

The loop is also used as a narrative device in the *Itihāsa* literature of India. The epic *Mahābhārata* is purportedly written by Vyāsa, who also plays a seminal role in the story, which endlessly repeats itself in recursive story-telling that is embedded within. The *Vishṇu Sahasranāma* nods to this narrative device by not only embedding itself inside the *Mahābhārata* (narrated by Bhīshma to Yudishṭhara in the *Mahābhārata*

war), but also explicitly calling *Vyāsa* as *Vishṇu-rūpāya* (possessing the form of *Vishṇu*) and *Vishṇu* as *Vyāsa-rūpāya* (vice-versa).

But despite these various mythical images, it is the lotus that is the symbol of choice for representing the infinite. One of the earliest and most beautiful images is from the chant of *Mantra Pushpam* in Yajurveda.

“*Yōpām pushpam vēdā, pushpavān prajāvān pashuvān bhavati*
Chandramāvā apām pushpam, pushpavān prajāvān pashuvān bhavati
Ya ēvam vēdā, Yōpām āyatanam vēdā, āyatanavān bhavati”

The one who knows the lotus of water, will be the possessor of lotuses, progeny and cattle wealth. Moon is the lotus of water. The one who knows this will be the possessor of lotuses, progeny and cattle. The one who knows this, the one who knows the source of water, will get established in his inner self.

The word ‘*Pushpa*’ refers to a flower in Sanskrit, but if it is not additionally qualified, it generally refers to the lotus. In the above verse, even this ambiguity is removed by terming it ‘*Āpām pushpam*’, the flower of water. So what exactly is this lotus? And what exactly is the source of water?

This verse continues with a series of fractal-like images: Fire (*Agni*) is the source of the water, and water is the source of fire. Wind (*Vāyu*) is the source of water, and water is the source of wind. Scorching sun (*Asauvai Tapah*) is the source of water, and water is the source of the scorching sun. Successively, it lists the moon (*Chandrama*), the stars (*Nakshatrāni*), the cloud (*Parjanya*) and the year (*Samvatsara*) as the source of water and water as their source. If one imagines these different elements at different corners of a circle and water (*Āpa*) at the center, this verse creates several loops to different corners, ultimately sketching a lotus. It is an infinity that covers all directions.

The Generative Lotus:

This conception of infinity is most elegantly expressed in the *Īśāvāsya Upanishad*, which uses the term *Pūrṇa* (completeness).

Om pūrṇamadah, pūrṇamidam, pūrṇāt pūrṇamudachyātē
Pūrṇasya pūrṇamādāya pūrṇamēva vasishyātē

Pūrṇa is over there. *Pūrṇa* is over here. From *Pūrṇa* is *Pūrṇa* is born. When *Pūrṇa* is subtracted from *Pūrṇa*, only *Pūrṇa* remains. The first *Pūrṇa* refers to *Prakṛti* and the second *Pūrṇa* refers

to *Puruṣa* of the *Sāṃkhya* philosophical system. Thereby, this verse encodes a deep Advaitic statement that equates both *Prakṛti* and *Purusha* to the infinite *Pūrṇa*, without denying their difference.

This ideal of *Pūrṇa* (completeness) is the motivation behind building a comprehensive model of reality, that is attempted by the *Vyākaraṇa* (grammatical) tradition of India. Pāṇini's *Aṣṭādhyāyī* arose in this tradition and referred to many earlier grammars. But it is the most elegant treatise of generative grammar for Sanskrit, and remains so for any language even today. Until recently, such generative grammars were altogether absent in any other world culture, but they now form the basis for understanding not only natural languages, but also computer languages. In Artificial intelligence, learning generative models (such as generative adversarial networks) is at the cutting edge of research, although current algorithms are not yet able to learn generative models so compact as Pāṇini's grammar from data alone.

The Indian tradition values *Sattva* (wholesomeness and harmony) and is thus naturally driven to build a comprehensive model of reality, and to identify epitomes across all variations and possibilities. Muscles in the human body suffer atrophy if they don't exercise the full range of movements. To compensate for this, *Yōgic Āsana* postures span the diverse poses of human limbs. Similarly, the Sanskrit alphabet consciously spans all the possibilities of vocal utterances. The hand *Mudras* in Indian dance span the diverse poses of fingers. Indian cuisine spans all the *Ṣaṭ Ruchi*s (six tastes). *Āyurvēda* attempts to restore a balance between the 3 *Dōshas*, in all the possible physical and emotional states. Each of these systems is understood as a lotus that blooms with petals in all directions.

When we talk of infinity as 'completeness', we mean something that encloses all other infinities, with nothing beyond it. This raises a peculiar problem that is unique to Indian religions, which is about unseemly things, how can they be part of the infinite?

The *Lakshmi Aṣṭothram* is addressed to “*Aditim ca Ditim*” (to the limitless one, as well as the limited one), to “*Prakṛtim Vikṛtim*” (to the natural one, to the abnormal and unnatural one), to “*Prasannavadanām Karuṇām*” (to the pleasant faced one and the compassionate one) as well as “*Kāmākshīm Krōdhasambhavām*” (to the ones whose eyes are desire, and to the one who produces anger caused by desire). It is in encapsulating these contradictory and unflattering terms that the lotus shines the most as a symbol for infinity.

Perhaps, the most beautiful enunciation is given by *Kālidāsa* in the epic poem *Kumārasambhava*, where he describes *Pārvati* performing austerities to meditate on Shiva.

Yathā prasddhair maduram śirōrūhair jaṭābhir apyēvam abhūt tadānanam
Na śatpadaśrēṇibhir ēva pañkajam saśaivalāsaṅgam api prakāśatē

Despite her hair hanging in dreadlocks, the face of *Pārvati* dazzled in beauty, just as the beauty of a lotus derives as much from its beautiful petals as it does from the mud on which it stands.

This idealism is not merely romantic, but derives from a wholesome understanding of infinity, not shy of the unseemly aspects of existence, but which still places beauty at the core of it. To understand this, we need to prod the *Kavi Hṛdaya* (poet's heart) of Kālidāsa, who uses the lotus as a metaphor for the beauty of *Sat*, *Chit* and *Ānanda* across the three levels of reality: *Bhūḥ*, *Bhuvah* and *Suvah*.

The Lotus Heart:

In *Ṛtusamhāra* (interplay of seasons), Kālidāsa describes the *Śarad Rtu* (early autumnal season) with many references to the lotus. After the monsoon rains subside, the skies are cleared off the clouds, but the rivers overflow with excess water forming shallow puddles on the banks. The poet describes the sight as follows.

Kāraṇḍavānanavighaṭṭitavīcimālāḥ
Kādambasārasacayākulatīradeśāḥ |
Kurvanti hamsavirutaiḥ parito janasya
Prītim saroruharajo'ruṇitās taṭinyah ||

The river banks pecked by the beaks of partridges, the shore lands which are dense with flocks of geese and saurus cranes, the shallow waters deep red in color by the pollen of red lotuses – all of these delight the hearts of people in autumn.

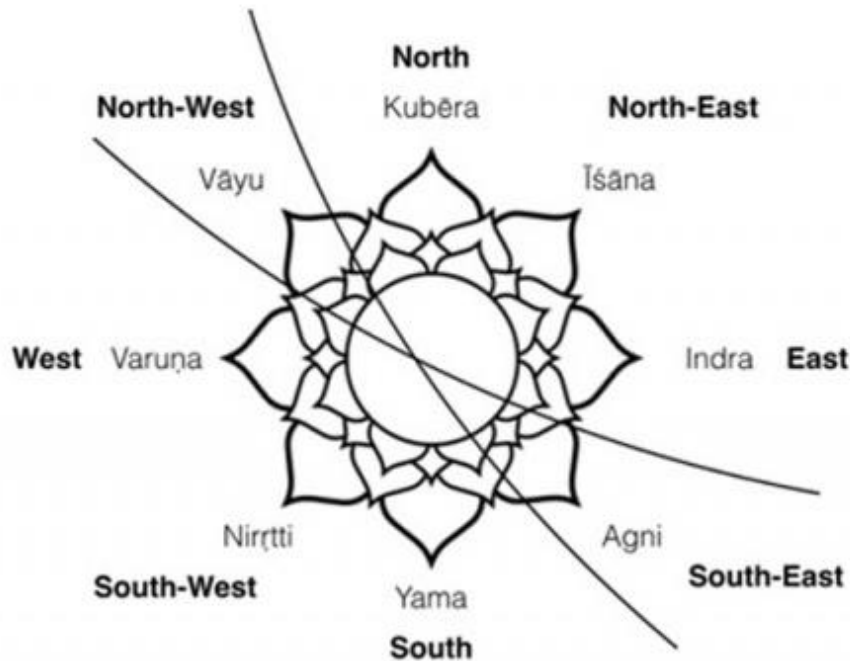
This is a sight that is unfortunately lost in time. The shorelines are no longer red with the pollen of lotuses. Indeed, it is exceedingly hard in today's India to find lotuses growing wild in natural water bodies. Neither are the large flocks of migratory birds to be seen everywhere. But those were the sights of Indian civilization. Even before the time of Kālidāsa, we may imagine the broad Saraswati river decked with lotuses and water birds. These natural images gave birth to the mythical images of *Saraswati*, as well as to the lofty ideals of *Brahmāvarta*. When people share a sight of beauty, they naturally share a part of their consciousness in each other. Just as the rhythm of the heart draws blood from all organs of the body, beauty is imagined by drawing experience from everyone.

Indian philosophers understood the heart to be the solution to the puzzle of aesthetic experience. How can an artist convey an aesthetic experience to another person? How is it even possible that two people, in two different bodies and with two different life experiences, share a common emotion? It is not possible unless they are *Sahṛdaya*, or literally joint-hearted. Only a *Sahṛdaya* would understand the nuances of art, music, or any cultural expression. Culture is essentially a tool for making people walk in step and perceiving reality together. When this becomes entwined with *Ṛta* - the natural flow of seasons, there will be no enmity between man and nature, or between man and man. The festivals of India are a means to celebrate the cosmic wheel of *Ṛta*, and realize the beauty which is the *Hṛt-padma* (lotus-heart) at the centre of it.

When man is enamored of beauty, he calls it by many names. This is reflected in the many names for lotus in Sanskrit literature. Born of water (*āpa*, *vāri*, *nīra*, *uda*, *tōya*, *jala*, *saras*), it is called *abja*, *vārija*, *nīraja*, *udaja*, *tōyaja*, *jalaja*, *sarōja*, *sarasija*, *sārasa*, *sarūdbhava* and so on. As it is born in mud (*pañka*), lotus is called *pañkaja*. As it grows (*rōhanti*) in water, it is called *sarōrūha*, *nīrarūha* or *ambōrūha*. There are many other names for lotus including *pushkara*, *aravinda*, *rājīva*, *kamala* and *pundarīka*. The lotus which only blooms at sunrise is called *padma*. Black lotus is called *utpala* and the blue variant is called *nīlōtpala*. In describing the autumn season (most beloved of *Saraswati*), Kālidāsa uses the vast palette of Sanskrit language: the beauty of a woman's face is outdone by the white lotus, the sidelong glances of her eyes by the swaying blue lotuses, and the heart-appeasing glow of her smile by the red lotus. These are *kavi-samaya* i.e., a reality woven by the poet. If we are *sahṛdaya* and invoke this *kavi-samaya*, we may perceive a beauty that is greater than either physical reality or the language it is described in.

The Petals of Eight Directions:

Indian conception of *Bhuvah* (heavens) is exactly identical to the reality of the mind, with the same *dēvas* (deities) residing in the stars and in the mind. The *Atharva Vēda* says that both men and the *dēvas* are placed as spokes to the wheel (of *Ṛta*), at the center of which the lotus (*Pushpa*) is placed. The *Maitri Upanishad* says that this *Hṛt-pushkara* (lotus of the heart) is the same as *Ākāśa* (space): the four quarters and four inter-quarters are its surrounding petals. These eight cardinal directions are protected by the eight deities known as *Ashṭa-Dikpālas*, who comprehensively describe the reality of the mind.



[The 8 cardinal directions have distinct meanings with respect to how a person faces them, which are represented by deities. The deities of opposite polarities, like Agni and Vāyu, are invoked together to realize the infinity of Pūrṇa.]

The east-west axis is about conscious perception vs. rigid categories. In the east, the sun rises and destroys the darkness (*timira*) with his rays of the dawn (*ushas*). In the west, the sunset opens up the night sky, which enables one to observe the cosmic order in terms of the motion of stars and planets. This contrast is brought out by the deities *Indra* and *Varuṇa*, who are invoked in the *Vēdas* to preside over deeds in peace-time and pacts in war-time respectively. Daylight signifies consciousness when people are aware of each other. Night-time signifies periods when this mutual awareness is non-existent, during which people's behavior needs to be governed according to a regimen of laws and moral code. *Varuṇa* symbolizes an adherence to written law – the power of language. His weapon is the noose, representing the power of words to capture a living concept, just as a noose captures a *Paśu* (animal). But language is chaotic. Like how water flows (*sarati*), the meanings of words change with respect to their context in space and time. *Indra* symbolizes conscious perception of reality using the 5 senses, that is independent of this, and rooted in the current moment alone. His weapon is the *Vajra* (lightning) that strikes like a flash of insight. *Varuṇa* and *Indra* are considered epitomes for *Asuras* and *Dēvas* respectively. Many hymns in the *Vēdas* jointly invoke *Indra-Varuṇa* (or *Mitra-*

Varuṇa) to combine these two aspects of opposite polarities, in an attempt to capture the *Pūrṇa* aspect of consciousness.

The north-south axis is about growth in time. The geography of India is situated in earth's northern hemisphere, where south-facing vegetation receives greater sunlight and thus greater growth. In Indian philosophy, this growth is *Karma* or the entropy of one's actions. In contrast, when one is faced northwards, it signifies renunciation and a desire for *Sattva* (negative entropy). This positive meaning is reflected in the journey of the sun in the northern direction (*Uttarāyana*) when the days get longer, starting from the winter solstice. *Sattva* leads to *sukha* (holistic pleasure) which is the true wealth of this world. This heaven of wealth is presided by *Kubēra* (also called *Vaiśrāvaṇa*) and his attendant deities of *Yakshas*. In contrast, *Karma* is judged by *Yama* whether it is in accordance with *Dharma* (ethics), who rules over the world of *Pitṛs* (fathers). When one's karma becomes too large, it leads to the chaos of entropy. The trash-bin (a storehouse of entropy) is considered a symbol of *Yama*. The Indian tradition tries to strike a balance between the world of *Dēvas* and *Pitṛs*, between the polarities of *Nivṛtti* and *Pravṛtti* – i.e, renouncing the world and engaging with the world.

The intermediate quarters are understood by interpolation of the qualities. The north-west is presided by *Vāyu* (wind), who is as fickle as the flow of language but who does not stick to material objects. The south-east is presided by *Agni* (fire), who burns things with his entropy, but who is rooted in the conscious experience of light. The speech of *Vēdas* is supposed to be *Agni*, and it is nourished by the breath of *Vāyu*. Rig Vēda states that *Agni* was born in the *Pushkara* (lotus), invoking the deeper symbolism of lotus for *Pūrṇa*.

tvāmagne puṣkarād ādhy ātharvā nīramanthata (Rig Veda 6.16.13)

“Agni, Atharvan brought thee forth, by rubbing the lotus flower (*Pushkara*)”

The south-west quarter represents the most disagreeable aspect of existence. It combines the chaos of entropy with the strict adherence to rigid conceptual categories in language. It is presided by *Nirṛti* (*rākshasi* or demoness) who utterly destroys happiness. *Nirṛti* is represented as *Dhūmavati* (a form of *Kālī*) in Tantric symbolism. In contrast, the north-east is presided by *Īśāna* (pure consciousness devoid of bias from either language or *karma* – a form of *Śiva*). The union of these most severe polarities is represented by the symbolism of *Śakti* and *Śiva*.

The deities of the eight directions comprehensively depict the diverse facets of mind. The eight petals constitute the lotus, which spawns from the navel of *Vishnu*, who represents the downward direction. Seated on top of the lotus is *Brahma*, who represents the upward direction. The equanimity of the middle is described by the *Mahādēva Śiva*, in whom all the diverse polarities unite.

A finer division of mental states is possible by further interpolating between the eight petals. But all the petals belong to the same lotus, which is *Chitta*. In Indian languages, *chittam* means paying attention – paying attention to all aspects of one’s mind when attending to something. This consummate awareness requires one to integrate the polarities of mind. This can happen in two manners that are beautifully illustrated by the analogy of the lotus. When the sun shines, the lotus opens the petals in full bloom. At night time when the moon rises, the lotus closes its petals together. While the lotus represents *Prakṛti*, the sun and the moon describe the action of *Purusha* as *Vishnu* and *Śiva* respectively.

In *Kumarasambhava*, *Kālidāsa* describes the beauty of *Pārvati* as follows:

*Chandram gatā padmāguṇān na bhuñktē padmāśritā chāndramasīm abhikhyām
Umāmukham tu pratipadya lōlā dvisamśrayām prītim avāpa lakshmīh*

Lakshmi, who is the queen of beauty, is never stable (*lōlā/chapalā*). When the moon rises, she does not possess the beauty of the lotus. When she is located in the lotus, she does not possess the beauty of moonlight. But when she is located on the face of *Umā* (*Pārvati*), she possesses them both.

These are mystical truths stated as charming poetry. *Kālidāsa* excels himself in another verse where he describes how Lakshmi holds an umbrella over the newly wed couple of *Śiva* and *Pārvati*.

*Patrāntalagnair jalabindujālair ākr̥ṣṭamuktāphalajālasōbham
Tyōr uparya āyatanāladarāḍam ādhatta lakshmīh kamalātapatram*

Holding the green lotus reed as the staff, Lakshmi spreads the petals of the lotus as an umbrella over the newly weds. A network of dew droplets on these petals glistens to the wonderful view below. This network of dew droplets is the *Indrajāla* (Indra’s net) – an allegory to how reality is maintained by multiple reflections into each other.

The Lotus of Deeper Reality

Chakra kē bichmē kambala ali phūliyā

*Tāsukā koi santa jānai?
Tā madha adhara simhāsana gājai,
Puruṣa mahā tāha adhika virājai.*

This verse of Kabīr says,

“At the centre of the wheel blooms a wonderful lotus. Is there any person pure enough in mind to know its delights? In its middle, thunders the mighty lion’s throne, on which dazzles the great ineffable self (*Puruṣa*).”

Hindu deities and myths are not simply ideas to be thought in the mind, but are rather rare experiences that can be achieved by *Sādhana* (Yōgic practice). Like the proverbial whale, which is mistaken to be an island by a sailor until it moves, the physical reality is misunderstood and misconceived by the mind until a deeper revelation dawns by direct experience. It may not be possible to express this deeper reality using the words and images of language, but an incomplete (nevertheless honest) projection may be made. The mystics of India expressed this as the great lotus that is cosmic (*viśwa*) as well as minute and personal (*sūkshma*). Just as one needs to be *Sahr̥daya* to appreciate the analogy of the lotus in *Bhūḥ* and *Bhuvaḥ* (physical and mental universes), one needs to be *Sahr̥adaya* in *Suvaḥ* (experienced in one’s own self) to appreciate this image.

In the Yōgic treatise of *Ṣaṭ-chakra-nirūpaṇa*, *Kuṇḍalinī* is mentioned to be like the fine strands of lotus fibre that are coiled in the Mūlādhāra chakra below one’s spine. Like how the fibres of the lotus stem draw waters from the mud below and transmit them to the flower above, *Kuṇḍalinī* is supposed to flow in the *Suṣumna* nerves in the spine and transmit the experience of *Parā* (ineffable self) to the brain. This experience is described as the powerful uncoiling of a snake that may raise only partially, without reaching the full potential. Various spots on the spinal cord and the brain, corresponding to different endocrine glands, are described as *Chakrās* that bloom as lotuses as *Kuṇḍalinī* flows upwards. But if the attention is not centered on the self, the centrifugal force of the *Chakra* (wheel) would throw it off at that stage. At certain higher states, a certain sensation in the ears should also be experienced (according to the term *kuṇḍala* or ear-rings of *Kuṇḍalinī* / *Aditi*, which are also present for her children - the solar deities *Ādityās*). The highest chakra is described as *Saḥsṛāra Padma*, lotus of thousand (or infinite) petals. Reaching this state is considered the only possible means by which Infinity can be understood (and realized) in human experience.

These Yōgic practices and experiences are depicted in ancient art, such as the *Paśupati* seal of Mohenjo-Dāro (and on the Gundestrup Cauldron) as well as painted in allegories in the stories of

Vēdās, *Purāṇas* and *Itihāsas* of India. *Kālidāsa* describes the *Veerāsana* posture in *Kumārasambhava* as follows:

Paryaṅkabandhasthirapūrvakāyam rjvāyatam saṃnamitōbhayāmsaṃ
Uttānapāriṇdvayasamnivēśāt praphullarājīvam ivāṅkamadhyē

With his two legs bound in the *Paryaṅka* posture, his spine upright with a slight bend on the top, his hands at the centre of the lap with the fingers in *Mudra*, *Śiva* in meditation resembled as if a lotus (*rājīva*) is placed on his lap.

The different religious systems (*Dharma*) of India understand that the *Yōgic* experience described by them is similar, expounding similar meditative practices and using a similar iconography of the lotus. Buddhists chant “*Ōm maṇi padmē hum*” (the jewel at the center of the lotus). Like *Brahma*, *Buddha* is seated on the lotus. Sikhs describe the *Gurumukhi* lotus that faces upwards to reach bliss and contrast it with *Manmukhi* lotus that faces downwards to reach sensual pleasures. Jains use lotus iconography in their temples as much as other sects of India. The use of a water tank as *Pushkariṇi* (literally, the one with lotuses) for ceremonial purposes is a tradition that goes back to the Indus-Saraswati civilization. The grand meeting of *Yōgis* of diverse sects happens at the *Pushkar* (lotus) festival by a river. It is to this union of *Yōgis* that Kabīr made his inquiry, “Is there any saint who knows the delights of the lotus?”. As stated by scholars such as Ānanda Coomaraswamy, this iconography derives from its earliest references in the *Vēdas*. This lotus blooms on a perennial river.

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CHAPTER XIV

Mandala of Jain Cosmology



ABSTRACT

Jain cosmology is the description of the shape and functioning of the Universe (*loka*) and its constituents (such as living beings, matter, space, time etc.) according to Jainism. Jain cosmology considers the universe as an uncreated entity that has existed since infinity with neither beginning nor end. Jain texts describe the shape of the universe as similar to a man standing with legs apart and arm resting on his waist. This Universe, according to Jainism, is broad at the top, narrow at the middle and once again becomes broad at the bottom.

COSMOS: Moral rewards and sufferings are not the work of a divine being, but a result of an innate moral order in the cosmos; a self-regulating mechanism whereby the individual reaps the fruits of his own actions through the workings of the karmas.

What is known and what is unknown: Saplabhangi : For instance, the word ‘unknowable’ is a contradiction of its own sense. Herbert Spencer meant was that which could not be fully known, not that which was wholly unknowable; for the mere fact that we know that there is a thing, however unknowable be its attributes, removes it from the category of the unknowable or unknown and puts it in that of the known.



The Jaina method is calculated to overcome this difficulty. It maintains that full knowledge of a thing is possible only when it has been looked at from all the different points of view which exhaust the categories of knowledge. For instance, to know merely what a thing is, is not enough; we ought also to know what it is not. But as we are not here concerned with the Saplabhangi. It only remains to be added that the ‘Key of

Knowledge' does not blindly follow the teaching of any particular sect or creed, not even of Jainism to which sublime and noble faith the author has the privilege of belonging by a happy incident of birth. The views set out herein are based on a study of the nature of things, and the interpretation of the scriptures of some of the prevailing religions has been undertaken only to show that the impartial conclusions of reason are precisely those which have been set before men in the form of doctrines and myths.

In dealing with the basic principles of religion it was not found necessary to go into a minute analysis of all the existing religions of the world, inasmuch as a survey of the principles underlying those actually dealt with sufficiently disposes of them all. Besides, a thorough treatment of each religion separately would have swelled the bulk of any book beyond all proportion, voluminous as this paper already is.¹

Godlines

Jainism does not teach the dependency on any supreme being for enlightenment. The Tirthankara is a guide and teacher who points the way to enlightenment, but the struggle for enlightenment is one's own. In Jainism, godliness is said to be the inherent quality of every soul (or every living organism) characterizing infinite bliss, infinite power, *Kevala Jnana* (pure infinite knowledge),^[3] infinite perception, and perfect manifestations of (countably) infinite other attributes. There are two possible views after this point. One is to look at the soul from the perspective of the soul itself. This entails explanations of the properties of the soul, its exact structure, composition and nature, the nature of various states that arise from it and their source attributes as is done in the deep and arcane texts of Samayasāra, Niyamasara and Pravachanasara. Another view is to consider things apart from the soul and its relationships with the soul. According to this view, the qualities of a soul are subdued due to karmas of the soul. *Karmas* are the fundamental particles of nature in Jainism. One who achieves this state of soul through right belief, right knowledge and right conduct can be termed a god. This perfection of soul is called *Kevalin*. A god thus becomes a liberated soul – liberated of miseries, cycles of rebirth, world, *karmas* and finally liberated of body as well. This is called *nirvana* or *moksha*.

Jains believe that to attain enlightenment and ultimately liberation from all karmic bonding, one must practice the ethical principles not only in thought, but also in words (speech) and action. Such a practice through lifelong work towards oneself is regarded as observing the *Mahavrata* ("Great Vows").

Gods can be thus categorized into embodied gods also known as *arihantas* and non-embodied formless gods who are called *Siddhas*. Jainism considers the *devīs* and *devas* to be souls who dwell in heavens owing to meritorious deeds in their past lives. These souls are in heavens for a fixed lifespan and even they have to undergo reincarnation as humans to achieve *moksha*.

Thus, there are infinite gods in Jainism, all equivalent, liberated, and infinite in the manifestation of all attributes. The Self and karmas are separate substances in Jainism, the former living and the latter non-living. The attainment of enlightenment and the one who exists in such a state, then those who have achieved such a state can be termed gods. Therefore, beings (Arihant) who've attained omniscience (*kevala jnana*) are worshipped as gods. The quality of godliness is one and the same in all of them. Jainism is sometimes regarded as a transtheistic religion,^[4] though it can be atheistic or polytheistic based on the way one defines "God".

God in Jainism

In Jainism, godliness is said to be the inherent quality of every soul. This quality, however, is subdued by the soul's association with karmic matter. All souls who have achieved the natural state of infinite bliss, infinite knowledge (*kevala jnana*), infinite power and infinite perception are regarded as **God in Jainism**. Jainism rejects the idea of a creator deity responsible for the manifestation, creation, or maintenance of this universe. According to Jain doctrine, the universe and its constituents (soul, matter, space, time, and principles of motion) have always existed. All the constituents and actions are governed by universal natural laws and perfect soul, an immaterial entity cannot create or affect a material entity like the universe.

Definition

From the essential perspective, the soul of every living organism is perfect in every way, is independent of any actions of the organism, and is considered God or to have godliness. But the

epithet of God is given to the soul in whom its properties manifest in accordance with its inherent nature. There are countably infinite souls in the universe.

According to *Ratnakaranda śrāvakācāra* (a major Jain text):

आप्तेनो च्छिनदोषेण सर्वज्ञेनागमेशिना।
भवितव्यं नियोगेन नान्यथा ह्याप्तता भवेत्॥५॥

In the nature of things the true God should be free from the faults and weaknesses of the lower nature; [he should be] the knower of all things and the revealer of dharma; in no other way can divinity be constituted.

क्षुत्पिपासाजराजरातक्ड जन्मान्तकभयस्मयाः।
न रागद्वेषमोहाश्च यस्याप्तः स प्रकीर्त्यते ॥६॥

He alone who is free from hunger, thirst, senility, disease, birth, death, fear, pride, attachment, aversion, infatuation, worry, conceit, hatred, uneasiness, sweat, sleep and surprise is called a God.

Five supreme beings-*Pañca-Parameṣṭhi*

The five supreme beings are:

1. Arihant: The awakened souls who have attained keval gyan are considered as Arihant. The 24 Tirthankaraas or Jinas, the legendary founding figures of Jainism in the present time cycle are Arihants. All Tirthankaras are Arihants but not all Arihants are Thirthankars
2. Siddha (Ashiri): The souls which have been liberated from the birth and death cycle.
3. Acarya
4. Upadhyaya ("Preceptors")
5. Muni or Jain monks
6. The five initials, viz. A+A+A+U+M are taken as forming the Aum syllable.
7. Five supreme beings[edit]
8. Obeisance to Pañca-Parameṣṭhi (five supreme beings)
9. Dravyasaṃgraha, a major Jain text, succinctly characterizes the five Supreme Beings (Pañca-Parameṣṭhi).
10. Definition of the World Teacher (Arhat) - verse 50.

11. Definition of the liberated souls (Siddha) - verses 51
12. Definition of the Chief Preceptor (Acarya) - verse 52.
13. Definition of the Preceptor (Upadhyaya) - verse 53.
14. Definition of the Ascetic (Sadhu) - verse 54.
15. Meditate on, recite or chant the sacred mantras, consisting of thirty-five, sixteen, six, five, four, two and one letter(s), pronouncing the virtues of the five supreme beings (Pañca-Parameṣṭhi). Besides, meditate on and chant other mantras as per the teachings of the Preceptor (guru).
16. Arihant

Having destroyed the four inimical varieties of karmas (ghātiyā karmas), possessed of infinite faith, happiness, knowledge and power, and housed in most auspicious body (paramaudārika śarīra), that pure soul of the World Teacher (Arhat) should be meditated on.

— Dravyasaṃgraha depicting *Pañca-Parameṣṭhi* (five supreme beings) worthy of veneration as per Jainism

In Jainism, the *Pañca-Parameṣṭhi* (Sanskrit for "five supreme beings") are a fivefold hierarchy of religious authorities worthy of veneration. The five supreme beings are:

1. *Arihant*
2. *Siddha*
3. *Acharya* (Head of the monastic order)
4. *Upadhyaya* ("Preceptor of less advanced ascetics")
5. *Muni* or *Jain monks*

Arihant

A human being who conquers all inner passions and possesses infinite right knowledge (*Kevala Jnana*) is revered as an *arihant* in Jainism.^[5] They are also called *Jinas* (conquerors) or *Kevalin* (omniscient beings). An arihant is a soul who has destroyed all passions, is totally unattached and without any desire and hence is able to destroy the four *ghātiyā karmas* and attain *kevala jñāna*, or omniscience. Such a soul still has a body and four *aghātiyā karmas*. *Arihantas*, at the end of their human life-span, destroy all remaining *aghātiyā karmas* and attain Siddhahood. There are two kinds of *kevalin* or *arihant*:

- *Sāmānya Kevalin*—Ordinary victors, who are concerned with their own salvation.
- *Tirthankara Kevalin*—Twenty-four human spiritual guides (teaching gods), who show the true path to salvation.

The word *Tirthankara* signifies the founder of a *tirtha* which means a fordable passage across a sea. The *Tirthankara* show the "fordable path" across the sea of interminable births and deaths. Jain philosophy divides the wheel of time in two halves, *Utsarpiṇī* or ascending time cycle and *avasarpiṇī*, the descending time cycle. Exactly 24 *Tirthankara* are said to grace each half of the



Tirthankara



Image of Vardhamana Mahavira, the 24th and last Tirthankara (Photo:Samanar Hills)

cosmic time cycle. Rishabhanatha was the first *Tirthankara* and Mahavira was the last *Tirthankara* of *avasarpinī*.

Tirthankara revive the fourfold order of *Shraman*, *Shramani*, *Śrāvaka*, and *Śrāvika* called *sangha*. *Tirthankara* can be called teaching gods who teach the Jain philosophy. However it would be a mistake to regard the *tirthankara* as gods analogous to the gods of the Hindu pantheon despite the superficial resemblances between Jain and Hindu ways of worship. *Tirthankara*, being liberated, are beyond any kind of transactions with the rest of the universe. They are *not* the beings who exercise any sort of creative activity or who have the capacity or ability to intervene in answers to prayers.

Tirthankara-nama-karma is a special type of *karma*, bondage of which raises a soul to the supreme status of a *tirthankara*.

Below are the details of the present 24 Tirthankars in the Bharatkshetra of Jambudweep.

1. Shri Rishabdev (Adinath)

Heaven before Birth :	Sarvarthasiddha
Father :	King Nabhi
Mother :	Marudevi
Birthplace :	Vinittanagari, Palitana
Complexion :	Golden
Symbol :	Ox / Bull
Height :	500 Dhanusha
Age :	8,400,000 Purva
Diksha Tree :	Vata (Banyan)
Yaksha :	Gomukha
Yakshini :	Chakresvari
Place of Nirvana :	Ashtapad

Kalyanakas

Chyavan :	Jeth Vad 4
Janma :	Fagan Vad 8
Diksha :	Fagan Vad 8
Keval Gyan :	Maha Vad 11
Moksha :	Posh Vad 13

Mystery behind the name

He had a sign of an ox on his thigh. The mother Marudeva saw 14 dreams, of which the first was that of an ox. He started the religion after a time span of 18 koda Kodi Sagaropam (Sagaropam itself is almost an innumerable number, therefore 18 KodaKodi sagaropam is a countless number). Therefore, he was also known as Ādinath (The first one).

2. Shri Ajitnath

Heaven before Birth :	Vijayavimana
Father :	King Jitshatru
Mother :	Vijaya Rani
Birthplace :	Ayodhya, Shikharji
Complexion :	Golden
Symbol :	Elephant
Height :	450 Dhanusha
Age :	7,200,000 Purva
Diksha Tree :	Sala (Shorea Robusta)
Yaksha :	Mahayaksha
Yakshini :	Ajitabala
Place of Nirvana :	Shikharji

Kalyanaks

Chyavan :	Vaisakh Sud 13
Janma :	Maha Sud 8
Diksha :	Maha Sud 9
Keval Gyan :	Posh Sud 11
Moksha :	Chaitra Sud 5

Mystery behind the name

The parents of Lord Ajit would always involve themselves in games and sports. Each time they did so, the father invariably won the game against his mother. But after the conception of lord Ajit his mother would always win the games. Thus she named him 'Ajit' or the unconquered one.

3. Shri Sambhavnath

Heaven before Birth :	Uvarimagraiveka
Father :	Jitari
Mother :	Senamata
Birthplace :	Savathi, Sravasti
Complexion :	Golden
Symbol :	Horse
Height :	400 Dhanusha
Age :	6,000,000 Purva
Diksha Tree :	Prayala

Yaksha :	Trimukha
Yakshini :	Prajnapti
Place of Nirvana :	Samet Shikhar

Kalyanaks

Chyavan :	Fagan Sud 8
Janma :	Magsar Sud 14
Diksha :	Magasar Sud 15
Keval Gyan :	Asho Vad 5
Moksha :	Chaitra Sud 5

Mystery behind the name

When the Lord Sambhav was conceived the production of grains increased and there was much prosperity. There were no droughts or famine. Hence he was called Sambhav or possible.

4. Shri Abhinandan Swami

Heaven before Birth :	Jayantavimana
Father :	Sambararaja
Mother :	Siddhartha
Birthplace :	Ayodhya, Shikharji
Complexion :	Golden
Symbol :	Ape
Height :	350 Dhanusha
Age :	5,000,000 Purva
Diksha Tree :	Priyangu
Yaksha :	Yakshesvara
Yakshini :	Vajrasrinkhala
Place of Nirvana :	Shikharji

Kalyanaks

Chyavan :	Vaisakh Sud 4
Janma :	Maha Sud 2
Diksha :	Maha Sud 12
Keval Gyan :	Posh Sud 14
Moksha :	Vaisakh Sud 8

Mystery behind the name

After the conception of Lord Abhinandan, the Lord Indira would often come and greet the unborn child and also praise Him. Also, people in the family and the state became happy and they congratulated each other. So the child came to be known as Abhinandan.

5. Shri Sumatinath

Heaven before Birth :	Jayantavimana
Father :	Megharaja
Mother :	Mangala
Birthplace :	Ayodhya, Shikharji
Complexion :	Golden
Symbol :	Red Goose
Height :	300 Dhanusha
Age :	4,000,000 Purva
Diksha Tree :	Sala
Yaksha :	Purushadatta
Yakshini :	Tumburu and Mahakali
Place of Nirvana :	Shikharji

Kalyanaks

Chyavan :	Shravan Sud 2
Janma :	Vaisakh Sud 8
Diksha :	Vaisakh Sud 9
Keval Gyan :	Chaitra Sud 11
Moksha :	Chaitra Sud 9

Mystery behind the name

From the time the child was conceived by his mother she had a strange and astonishing enlightenment of wisdom and knowledge. She then decided to call the child Sumati or the one with good wisdom.

6. Shri Padmaprabhu

Heaven before Birth :	Uvarimagraiveka
Father :	Sridhara
Mother :	Susima
Birthplace :	Kausambi, Samet Shikhar
Complexion :	Red
Symbol :	Lotus bud
Height :	250 Dhanusha
Age :	3,000,000 Purva
Diksha Tree :	Chhatra
Yaksha :	Manovega or Manogupti
Yakshini :	Kusuma and Syama
Place of Nirvana :	Shikharji

Kalyanaks

Chyavan :	Posh Vad 6
Janma :	Asho Vad 12
Diksha :	Asho Vad 13
Keval Gyan :	Chaitra Sud 11
Moksha :	Chaitra Sud 9

Mystery behind the name

When the Lord Padma was conceived by his mother, she had a desire to recline on the bed of the Lotus flowers. One of the Gods, fulfilled her desire by creating a recliner made of lotus petals for her. The child that was born also had the rosy complexion of a lotus flower. Hence he was called Padma or the Lotus flower.

7. Shri Suparshvanath

Heaven before Birth :	Madhyamagraiveka
Father :	Pratishtharaja
Mother :	Prithvi
Birthplace :	Kausambi, Samet Shikhar
Complexion :	Emerald
Symbol :	Swastika
Height :	200 Dhanusha
Age :	2,000,000 Purva
Diksha Tree :	Sirisha
Yaksha :	Matanga and Santa
Yakshini :	Varanandi and Kali
Place of Nirvana :	Shikharji

Kalyanaks

Chyavan :	Shravan Vad 8
Janma :	Jeth Sud 12
Diksha :	Jeth Sud 13
Keval Gyan :	Maha Vad 6
Moksha :	Maha Vad 7

Mystery behind the name

The mother had a disease on both the sides, but when the Lord Supashva was conceived , she was totally cured and became glittering like Gold. Thus the name was kept as Suparshva.

8. Shri Chandraprabhu Swami

Heaven before Birth :	Vijayanta
Father :	Mahasenaraja
Mother :	Lakshmana
Birthplace :	Chandrapura, Samet Shikhar

Complexion :	White
Symbol :	Moon
Height :	150 Dhanusha
Age :	1,000,000 Purva
Diksha Tree :	Naga
Yaksha :	Vijaya and Bhrikuti
Yakshini :	Vijaya and Jvalamalini
Place of Nirvana :	Shikharji

Kalyanaks

Chyavan :	Fagan Vad 5
Janma :	Magasar Vad 12
Diksha :	Magasar Vad 13
Keval Gyan :	Maha Vad 7
Moksha :	Shravan Vad 7

Mystery behind the name

When the Lord Chandra was conceived, his mother felt a longing for the moon. Her complexion glowed of happiness with radiance and the beauty of the moon. So the child that had brought that glow to the mother came to be called Chandra or the Moon.

9. *Shri Suvidhinath*

Heaven before Birth :	Anatadevaloka
Father :	Sugrivaraja
Mother :	Ramarani
Birthplace :	Kanandinagari, Shikharji
Complexion :	White
Symbol :	Crab
Height :	100 Dhanusha
Age :	2,000,000 Purva
Diksha Tree :	Sali
Yaksha :	Ajita and Sutaraka
Yakshini :	Mahakali
Place of Nirvana :	Shikharji

Kalyanaks

Chyavan :	Maha Vad 9
Janma :	Kartak Vad 5
Diksha :	Kartak Vad 6
Keval Gyan :	Kartak Sud 3
Moksha :	Bhadarva Sud 9

Mystery behind the name

The mother of Lord Suvidhi achieved success and prosperity in every endeavour she undertook, so she called her child Suvidhi.

10. Shri Shitalnath

Heaven before Birth :	Achyutadevaloka
Father :	Dridharatha-rajā
Mother :	Nanda
Birthplace :	Bhadrapura, Shikharji
Complexion :	Golden
Symbol :	Srivatsa
Height :	90 Dhanusha
Age :	100,000 Purva
Diksha Tree :	Priyangu
Yaksha :	Brahma and Asoka
Yakshini :	Manavi
Place of Nirvana :	Shikharji

Kalyanaks

Chyavan :	Chaitra Vad 6
Janma :	Posh Vad 12
Diksha :	Posh Vad 13
Keval Gyan :	Magasar Vad 14
Moksha :	Chaitra Vad 2

Mystery behind the name

The father of Lord Sheetal was troubled with a malignant heat disease. The medications that he was taking did not help him in any way. Since the conception of the child the father was instantly relieved of his heat disease and hence they called the child Sheetal or the cool one.

11. Shri Shreyanshnath

Heaven before Birth :	Achyutadevaloka
Father :	Vishnuraja
Mother :	Vishna
Birthplace :	Simhapuri, Shikharji
Complexion :	Golden
Symbol :	Rhinoceros / Garuda
Height :	80 Dhanusha
Age :	8,400,000 common years
Diksha Tree :	Tanduka
Yaksha :	Yakshet

Yakshini :	Manavi
Place of Nirvana :	Shikharji

Kalyanaks

Chyavan :	Vaisakh Vad 6
Janma :	Maha Vad 12
Diksha :	Maha Vad 13
Keval Gyan :	Posh Vad Amaas
Moksha :	Ashadh Vad 3

Mystery behind the name

The father of Lord Shreyans had a bed, which was the family heirloom that had been bestowed by the gods. But whoever reclined on it would be greatly inconvenienced. When the child was conceived the mother of the child had a great desire to recline on this bed and she did so. But the gods did her no harm as they realized that she was bearing the Lord. The mother was saved due to her being in family state. So she called her son Shreyans.

12. Shri Vasupujya Swami

Heaven before Birth :	Pranatadevaloka
Father :	Vasupujya
Mother :	Jaya
Birthplace :	Champapuri, Shikharji
Complexion :	Ruddy
Symbol :	Female buffalo
Height :	70 Dhanusha
Age :	7,200,000 common years
Diksha Tree :	Patala
Yaksha :	Kumara
Yakshini :	Chanda; or Gandhari
Place of Nirvana :	Samed Shikharji

Kalyanaks

Chyavan :	Jeth Sud 9
Janma :	Maha Vad 14
Diksha :	Maha Vad Amaas
Keval Gyan :	Maha Sud 2
Moksha :	Asadh Sud 14

Mystery behind the name

When the Lord Vasupujya was conceived the god Indra started venerating the mother of the unborn child. Also the Vaishram Gods started showering the kingdom with diamonds and precious stones, so he came to be called Vasupujya.

13. Shri Vimalnath

Heaven before Birth :	Mahasaradevaloka
Father :	Kritavarmaraja
Mother :	Syama
Birthplace :	Kampilyapura, Shikharji
Complexion :	Golden
Symbol :	Boar
Height :	60 Dhanusha
Age :	6,000,000 common years
Diksha Tree :	Jambu
Yaksha :	Shanmukha
Yakshini :	Vidita
Place of Nirvana :	Shikharji

Kalyanaks

Chyavan :	Vaisakh Sud 12
Janma :	Maha Sud 3
Diksha :	Maha Sud 4
Keval Gyan :	Posh Sud 6
Moksha :	Jeth Vad 7

Mystery behind the name

When he was in his mother's womb, both body and mind became pure with his grace. The Lord, destroyed the unclean karmās with purity of his mind. So he was known as Vimal or the relaxed one.

14. Shri Ananthnath

Heaven before Birth :	Pranatadevaloka
Father :	Simhasena
Mother :	Sujasa
Birthplace :	Ayodhya, Shikharji
Complexion :	Golden
Symbol :	Bear
Height :	50 Dhanusha
Age :	3,000,000 common years
Diksha Tree :	Asoka
Yaksha :	Patala
Yakshini :	Ankusa; or Anantamati
Place of Nirvana :	Samet Shikharji

Kalyanaks

Chyavan :	Asadh Vad 7
Janma :	Chaitra Vad 13
Diksha :	Chaitra Vad 14
Keval Gyan :	Chaitra Vad 14
Moksha :	Chaitra Sud 5

Mystery behind the name

When the Lord Anant was conceived, one day in her dream his mother saw an endless chain of diamonds linked together. Hence, she called her son Anant or the endless one.

15. Shri Dharmanath

Heaven before Birth :	Vijayavimana
Father :	Bhanuraja
Mother :	Suvrita
Birthplace :	Ratnapuri, Palitana
Complexion :	Golden
Symbol :	Vajra
Height :	45 Dhanusha
Age :	1,000,000 common years
Diksha Tree :	Dadhiparna
Yaksha :	Kinnara
Yakshini :	Manasi
Place of Nirvana :	Samet Shikharji

Kalyanaks

Chyavan :	Vaisakh Sud 7
Janma :	Maha Sud 3
Diksha :	Maha Sud 12
Keval Gyan :	Posh sud 15
Moksha :	Jeth Sud 5

Mystery behind the name

The mother of the Lord became more religious and devout when he was in her womb. Also, the lord himself was prone to religion by nature. Thus she resolved to call her son Dharma.

16. Shri Shantinath

Heaven before Birth :	Sarvarthasiddha
Father :	Visvasena
Mother :	Achira

Birthplace :	Vinittanagari, Palitana
Complexion :	Golden
Symbol :	Antelope
Height :	40 Dhanusha
Age :	100,000 common years
Diksha Tree :	Nandi
Yaksha :	Garuda
Yakshini :	Nirvani
Place of Nirvana :	Hastinapuri

Kalyanaks

Chyavan :	Shravan Vad 7
Janma :	Vaishakh Vad 13
Diksha :	Vaishakh Vad 14
Keval Gyan :	Posh Sud 9
Moksha :	Vaishakh Vad 13

Mystery behind the name

When the Lord Shanti was conceived there was an uprising that had been peacefully settled. Also, all the diseases which were prevailing in the kingdom disappeared. Since then he came to be known as Shanti or peace.

17. Shri Kunthunath

Heaven before Birth :	Sarvarthasiddha
Father :	Suraraja
Mother :	Srirani
Birthplace :	Gajapura
Complexion :	Golden
Symbol :	Goat
Height :	35 Dhanusha
Age :	95,000 common years
Diksha Tree :	Bhilaka
Yaksha :	Gandharva
Yakshini :	Bala; or Vijaya
Place of Nirvana :	Samet Shikharji

Kalyanaks

Chyavan :	Asadh Vad 9
Janma :	Chaitra Vad 14
Diksha :	Chaitra Vad 5
Keval Gyan :	Chaitra Vad 5

Mystery behind the name

The mother of Lord Kunthu, one day saw a dream in which on a beautiful and fertile wide expanse of land there was a huge dome of diamonds and she thus awakened from her sleep. And thus she called her son Kunthu.

18. Shri Aranath

Heaven before Birth :	Sarvarthasiddha
Father :	Sudarsana
Mother :	Devirani
Birthplace :	Gajapura
Complexion :	Golden
Symbol :	Nandyavarta
Height :	30 Dhanusha
Age :	84,000 common years
Diksha Tree :	Amba
Yaksha :	Yaksheta
Yakshini :	Dhana
Place of Nirvana :	Samet Shikharji

Kalyanaks

Chyavan :	Fagan Sud 2
Janma :	Magsar Sud 10
Diksha :	Magsar Sud 11
Keval Gyan :	Kartik Sud 12
Moksha :	Magsar Sud 10

Mystery behind the name

When the Lord Aranath was conceived his mother in her dream saw a beautiful and huge chakra with jewels which resulted in the growth of the dynasty. So his mother named him Aranath.

19. Shri Mallinath

Heaven before Birth :	Jayantadevaloka
Father :	Kumbharaja
Mother :	Prabhavati
Birthplace :	Mathura
Complexion :	Blue
Symbol :	Jar or Kalasa
Height :	25 Dhanusha
Age :	55,000 common years
Diksha Tree :	Asoka

Yaksha :	Kubera
Yakshini :	Aparajita
Place of Nirvana :	Samet Shikhar

Kalyanaks

Chyavan :	Fagan Sud 4
Janma :	Magsar Sud 11
Diksha :	Magsar Sud 11
Keval Gyan :	Magsar Sud 11
Moksha :	Fagan Sud 12

Mystery behind the name

When the Lord Malli was conceived his mother had a strong inclination to sleep on a bed bedecked with the fragrant flowers of all seasons. Hence she called her child Malli.

20. Shri Munisuvrat Swami

Heaven before Birth :	Aparajita-devaloka
Father :	Sumitraraja
Mother :	Padmawati
Birthplace :	Rajgir
Complexion :	Black
Symbol :	Tortoise
Height :	20 Dhanusha
Age :	30,000 common years
Diksha Tree :	Champaka
Yaksha :	Varuna
Yakshini :	Bahurupini
Place of Nirvana :	Samet Shikharji

Kalyanaks

Chyavan :	Shravan Sud 15
Janma :	Vaisakh Vad 8
Diksha :	Fagan Sud 12
Keval Gyan :	Shravan Vad 12
Moksha :	Vaisakh Vad 9

Mystery behind the name

When the child Lord Munisuvrat was conceived, his mother was bound by a vow so the child came to be known as Suvrat.

21. Shri Naminath

Heaven before Birth :	Pranatadevaloka
Father :	Vijayaraja
Mother :	Viprarani
Birthplace :	Mathura
Complexion :	Yellow or Emerald
Symbol :	Blue water-lily; or Asoka tree
Height :	15 Dhanusha
Age :	10,000 common years
Diksha Tree :	Bakula
Yaksha :	Bhrikuti
Yakshini :	Gandhari
Place of Nirvana :	Samet Shikharji

Kalyanaks

Chyavan :	Asho Sud 15
Janma :	Ashadh Vad 8
Diksha :	Jeth Vad 9
Keval Gyan :	Magsar Sud 11
Moksha :	Chaitra Vad 10

Mystery behind the name

When the child was conceived the kingdom of Lord Nami was invaded by the enemy. His mother felt a desire to go on to the roof of the house and look down upon the enemy and due to this with the effect of the child in the womb, the enemy was defeated. The child was hence called Nami..

22. Shri Neminath

Heaven before Birth :	Aparajita
Father :	Samudravijaya
Mother :	Sivadevi
Birthplace :	Ujjain
Complexion :	Black
Symbol :	Conch
Height :	10 Dhanusha
Age :	1,000 common years
Diksha Tree :	Vetasa
Yaksha :	Gomedha or Sarvahna
Yakshini :	Ambika or Kushmandini
Place of Nirvana :	Girnarji

Kalyanaks

Chyavan :	Asho Vad 12
Janma :	Shravan Sud 5
Diksha :	Shravan Sud 6
Keval Gyan :	Bhadarva Vad Amaas
Moksha :	Ashadh Sud 8

Mystery behind the name

When the child was conceived the mother in her dream saw a huge diamond studded wheel spinning. They decided to call the child Arishtanemi (also known as Neminath).

23. Shri Parshvanath

Heaven before Birth :	Pranatadevaloka
Father :	Asvasenaraja
Mother :	Vamadevi
Birthplace :	Varanasi
Complexion :	Black
Symbol :	Serpent or Snake
Height :	9 hands or cubits
Age :	100 common years
Diksha Tree :	Dhataki
Yaksha :	Dharanendra
Yakshini :	Padmavati Mata
Place of Nirvana :	Samet Shikharji

Kalyanaks

Chyavan :	Fagan Vad 4
Janma :	Magsar Vad 10
Diksha :	Magsar Vad 11
Keval Gyan :	Fagan Vad 4
Moksha :	Shravan Sud 8

Mystery behind the name

When the Lord conceived in his mother's womb, one day while his parents were asleep in pitch darkness, the mother felt that there was a seven headed snake passing by the bedside where they were asleep. Drawing her husband's arm away from where the snake was passing she saved his

life. She said that she could see the snake even in pitch darkness. This showed the power of the embryo. Hence they called their child Parshva.

24. Shri Mahavir Swami

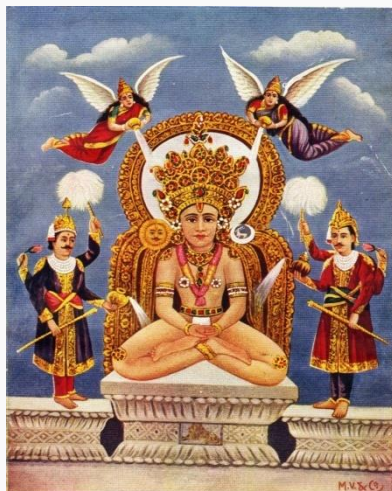
Mahavir Swami is called the 24th Tirthankara of the Jain tradition. There is nothing new in his teachings. In the four pledges of Parshvanath, he added a fifth vow and that was - to live a life of purity. His disciples used to roam naked so he was called Nirgranth. Like Buddha, Mahavir Swami considered the purity of body and mind, non-violence and salvation as the ultimate purpose of life. But his salvation is different from Buddha's nirvana. In Jainism, the soul's union with the divine is considered salvation. Whereas in Buddhism, liberation from rebirth is nirvana. Mahavir Swami preached these same principles for almost 30 years and at the age of 72, he gave up his body in a place called Pavapuri near Rajgir.

Mahavir's teachings

Mahavir used to say that whoever wants to attain Jain nirvana should purify their conduct, knowledge, and belief and must follow the five vows. There is great glory of tenacity in Jainism. Fasting has also been seen as austerity. No human can be pure from inside without meditating, fasting and meditating. If he wants the salvation of his own soul, he has to meditate, fast and meditates. Mahavir insisted on complete non-violence and since then "Ahimsa Paramo Dharma" came to be considered as a cardinal principle in Jainism. Digambar and Shwetambar

Nearly 300 BC Jainism got divided into two sects - Digambara and Shvetambara. Digambar worships the naked idol and Shwetambar dresses his idols in white. According to the 2011 census, there are 44 lakh 51 thousand followers of Jainism in India. They are counted among the rich and affluent class. Most of the people of Jainism belong to the merchant class. Jainism was not propagated among all people because its rules were tough. The kings adopted and propagated Jainism. Most Vaishya classes adopted Jainism. The great scholars Mahatma have also joined the followers of Jainism.

24. Mahaveer Swami



॥ अंतिम तिर्थंकर श्री महावीर स्वामी ॥

Other names *Vīr, Ativīr, Vardhamāna, Sanmati, Nigaṇṭha Nātaputta*

Venerated in Jainism

Predecessor Bhagwan Parshvanatha

Symbol Lion

Height 7 cubits (10.5 feet)

Age 72 years

Tree Shala

Complexion Golden

Personal Information

Born 6th century BCE (historical)
c. 599 BCE (traditional)
Kundalpur, Present-day Nalanda district, Bihar, India

Moksha 5th century BCE (historical)
c. 527 BCE (traditional)
Pawapuri, Present-day Bihar, India

Parents	<ul style="list-style-type: none"> • Siddhartha (father) • Trishala (mother)
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Birthplace	Kundalpur (Nalanda-Bihar)
Father	King Siddharth
Mother	Queen Trishala
Caste (Varna)	Kshatriya
Dynasty	Nath
Body Colour	Golden
Symbol	Lion
Age	72 Years
Body Occupancy	7 Hands
Incarnation (in womb)	Asharh Shukla 6
Birth	Chaitra Shukla 13
Initiation	Magsir Krishna 10
Initiation	Omniscience Forest & Tree-Shand Forest & Sal (Shorea Robusta) Tree
First Food	Given By King Vakul Of Kool Village (Kheer)
Special Food	Given By Mahasati Chandna In Kaushambi (Kheer)
Omniscience	Vaishakh Shukla 10
Veershasan Jayanti	Shravan Krishna 1 (Day of Lord's First Holy Preaching At Rajgrihi)
Salvation	Kartik Krishna 15
Salvation Place	Pavapuri
Chief Disciples (Gandhars)	11 (Shri Indrabhuti etc.)
Saints (Munis)	14 Thousand
Chief Aryika (Ganini)	Aryika Chandana
Female saints (Aryikas)	36 Thousand
Male Votaries	1 Lacs
Female Votaries	3 Lacs
Male Demigod	Matang Dev
Female Demigod	Siddhayini Devi

PANCH KALYANAKA of 24 TIRTHANKAR

Sr. No:	Tirthankar	Chyavan	Janma	Diksha	Keval Gyan	Moksha
1	Shri Aadinath	Jeth Vad 4	Fagan Vad 8	Fagan Vad 8	Maha Vad 11	Posh Vad 13
2	Shri Ajitnath	Vaisakh Sud 13	Maha Sud 8	Maha Sud 9	Posh Sud 11	Chaitra Sud 5
3	Shri Sambhavnath	Fagan Sud 8	Magsar Sud 14	Magasar Sud 15	Asho Vad 5	Chaitra Sud 5
4	Shri Abhinandan Swami	Vaisakh Sud 4	Maha Sud 2	Maha Sud 12	Posh Sud 14	Vaisakh Sud 8
5	Shri Sumatinath	Shravan Sud 2	Vaisakh Sud 8	Vaisakh Sud 9	Chaitra Sud 11	Chaitra Sud 9
6	Shri Padma Prabh Swami	Posh Vad 6	Asho Vad 12	Asho Vad 13	Chaitra Sud 11	Chaitra Sud 9

7	Shri Suparshvanath	Shravan Vad 8	Jeth Sud 12	Jeth Sud 13	Maha Vad 6	Maha Vad 7
8	Shri Chandra Prabh Swami	Fagan Vad 5	Magasar Vad 12	Magasar Vad 13	Maha Vad 7	Shravan Vad 7
9	Shri Suvidhi Nath	Maha Vad 9	Kartak Vad 5	Kartak Vad 6	Kartak Sud 3	Bhadarva Sud 9
10	Shri Shitalnath	Chaitra Vad 6	Posh Vad 12	Posh Vad 13	Magasar Vad 14	Chaitra Vad 2
11	Shri Shreyansnath	Vaisakh Vad 6	Maha Vad 12	Maha Vad 13	Posh Vad Amaas	Ashadh Vad 3
12	Shri Vasupujya Swami	Jeth Sud 9	Maha Vad 14	Maha Vad Amaas	Maha Sud 2	Asadh Sud 14
13	Shri Vimalnath	Vaisakh Sud 12	Maha Sud 3	Maha Sud 4	Posh Sud 6	Jeth Vad 7

14	Shri Anantnath	Asadh Vad 7	Chaitra Vad 13	Chaitra Vad 14	Chaitra Vad 14	Chaitra Sud 5
15	Shri Dharmanath	Vaisakh Sud 7	Maha Sud 3	Maha Sud 12	Posh sud 15	Jeth Sud 5
16	Shri Shantinath	Shravan Vad 7	Vaishakh Vad 13	Vaiskh Vad 14	Posh Sud 9	Vaisakh Vad 13
17	Shri Kunthunath	Asadh Vad 9	Chaitra Vad 14	Chaitra Vad 5	Chaitra Vad 5	Chaitra Vad 1
18	Shri Arnath	Fagan Sud 2	Magsar Sud 10	Magsar Sud 11	Kartik Sud 12	Magsar Sud 10
19	Shri Mallinath	Fagan Sud 4	Magsar Sud 11	Magsar Sud 11	Magsar Sud 11	Fagan Sud 12
20	Shri Muni Suvrat Swami	Shravan Sud 15	Vaisakh Vad 8	Fagan Sud 12	Shravan Vad 12	Vaisakh Vad 9
21	Shri Naminath	Asho	Ashadh	Jeth Vad	Magsar	Chaitra

		Sud 15	Vad 8	9	Sud 11	Vad 10
22	Shri Neminath	Asho Vad 12	Shravan Sud 5	Shravan Sud 6	Bhadarva Vad Amaas	Ashadh Sud 8
23	Shri Parsvanath	Fagan Vad 4	Magsar Vad 10	Magsar Vad 11	Fagan Vad 4	Shravan Sud 8
24	Shri Mahavir Swami	Asadh Sud 6	Chaitra Sud 13	Kartak Vad 10	Vaisakh Sud 10	Asho Vad Amaas



Although the *siddhas* (the liberated beings) are formless and without a body, this is how the Jain temples often depict them. Previous pic

Ultimately all *arihantas* become *siddhas*, or liberated souls, at the time of their nirvana. A *siddha* is a soul who is permanently liberated from the transmigratory cycle of birth and death. Such a soul, having realized its true self, is free from all the *Karmas* and embodiment. They are

formless and dwell in *Siddhashila* (the realm of the liberated beings) at the apex of the universe in infinite bliss, infinite perception, infinite knowledge and infinite energy.

The Acharanga Sutra 1.197 describes *siddhas* in this way:

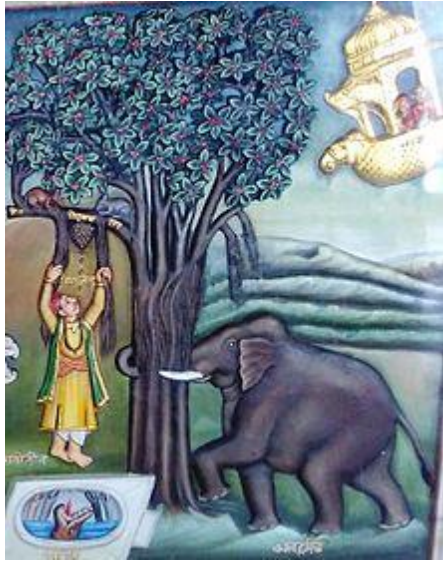
The liberated soul is not long nor small nor round nor triangular nor quadrangular nor circular; it is not black nor blue nor red nor green nor white; neither of good nor bad smell; not bitter nor pungent nor astringent nor sweet; neither rough nor soft; neither heavy nor light; neither cold nor hot; neither harsh nor smooth; it is without body, without resurrection, without contact (of matter), it is not feminine nor masculine nor neuter. The siddha perceives and knows all, yet is beyond comparison. Its essence is without form; there is no condition of the unconditioned. It is not sound, not colour, not smell, not taste, not touch or anything of that kind. As per the Jain cosmology Siddhahood is the ultimate goal of all souls. There are infinite souls who have become *siddhas* and infinite more who will attain this state of liberation. According to Jainism, Godhood is not a monopoly of some omnipotent and powerful being(s). All souls, with right perception, knowledge and conduct can achieve self-realisation and attain this state. Once achieving this state of infinite bliss and having destroyed all desires, the soul is not concerned with worldly matters and does not interfere in the working of the universe, as any activity or desire to interfere will once again result in influx of karmas and thus loss of liberation.

Jains pray to these passionless Gods not for any favors or rewards but rather pray to the qualities of the God with the objective of destroying the *karmas* and achieving the Godhood. This is best understood by the term *vandetadgunalabhdhaye* – i.e. "we pray to the attributes of such Gods to acquire such attributes"

According to Anne Vallely: ²

Jainism is not a religion of coming down. In Jainism it is we who must go up. We only have to help ourselves. In Jainism we have to become God. That is the only thing.

Devas



Symbolic depiction of Saṃsāra(RIGHT)

Idol of Padmāvātī devī, śāsanadevī of Lord Parshvanatha at Walkeshwar Temple. She is one of the most popular demi-goddess amongst the Jains. According to Digambar Terapanth, worship of such deities is considered as *mithyātvā* or wrong belief. However, in the Bispanthi Digambar tradition and the Shwetambar tradition, Padmavati is a popular Jain goddess.

Jain cosmology offers an elaborate description of heavenly beings (*devas*), but these beings are neither viewed as creators nor are they immortal; they are subject to suffering and change like all other living beings, and must eventually die. In this way, they are similar to the devas of Buddhism. English-language material tends to retain the term "deva" or describe these beings as "deities", "gods" and "goddesses."

Jainism describes existence of *śāsanadevatās* and *śāsanadevīs*, the attendants of a *Tirthankara*, who create the *samavasarana* or the divine preaching assembly of a *Tirthankara*. Such heavenly beings are classified as:-

- *Bhavanapatis* – Devas dwelling in abodes
- *Vyantarās* – Intermediary devas
- *Jyotiṣkas* – Luminaries
- *Vaimānikas* – Astral devas

The souls on account of accumulation of meritorious *karmas* reincarnate in heavens as devas. Although their life span is quite long, after their merit *karmas* are exhausted, they once again

have to reincarnate back into the realms of humans, animals or hells depending on their karmas. As these devas themselves are not liberated, they have attachments and passions and hence not worthy of worship.

Ācārya Hemachandra decries the worship of such devas:

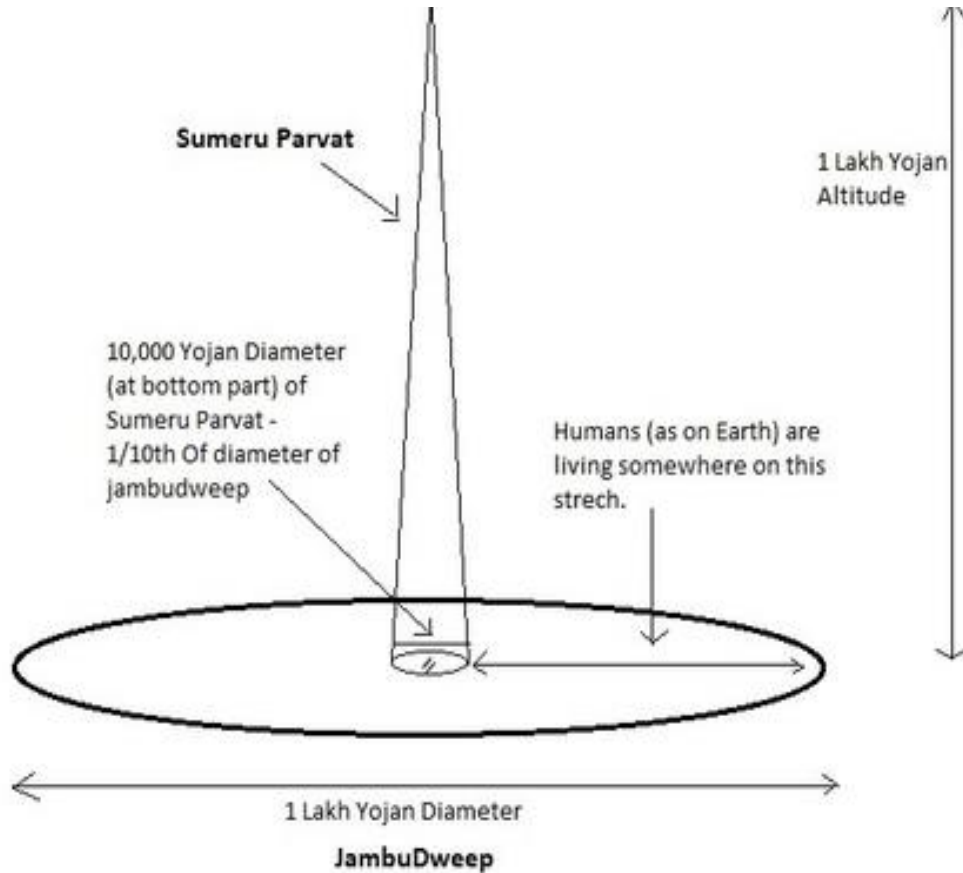
These heavenly beings (devas above) tainted with attachment and passion; having women and weapons by their side, favour some and disfavour some; Such heavenly beings (devas) should not be worshipped by those who desire emancipation.

Worship of such devas is considered as *mithyatva* or wrong belief leading to bondage of karmas.

Jain opposition to creationism

Jain scriptures reject God as the creator of the universe. Further, it asserts that no God is responsible or causal for actions in the life of any living organism. Ācārya Hemacandra in the 12th century put forth the Jain view of the universe in the *Yogaśāstra*:

This universe is not created nor sustained by anyone; It is self-sustaining, without any base or support



According to Jain doctrine, the universe and its constituents—soul, matter, space, time, and principles of motion—have always existed. Jainism does not support belief in a creator deity. All the constituents and actions are governed by universal natural laws. It is not possible to create matter out of nothing and hence the sum total of matter in the universe remains the same (similar to law of conservation of mass). Jain text claims that the universe consists of *jiva* (life force or



Pic of Mahavir Swamy the 24 th Tirthankar from beginning of 1900

souls) and *ajiva* (lifeless objects). The soul of each living being is unique and uncreated and has existed during beginningless time.

The Jain theory of causation holds that a cause and its effect are always identical in nature and hence a conscious and immaterial entity like God cannot create a material entity like the universe. Furthermore, according to the Jain concept of divinity, any soul who destroys its *karmas* and desires achieves liberation (*nirvana*). A soul who destroys all its passions and desires has no desire to interfere in the working of the universe. Moral rewards and sufferings are not the work of a divine being, but a result of an innate moral order in the cosmos: a self-regulating mechanism whereby the individual reaps the fruits of his own actions through the workings of the *karmas*.

Through the ages, Jain philosophers have rejected and opposed the concept of creator and omnipotent God and this has resulted in Jainism being labeled as *nastika darsana* or atheist philosophy by the rival religious philosophies. The theme of non-creationism and absence of omnipotent God and divine grace runs strongly in all the philosophical dimensions of Jainism, including its cosmology, karma, moksa and its moral code of conduct. Jainism asserts a religious and virtuous life is possible without the idea of a creator god.

Besides scriptural authority, Jains also resorted to syllogism and deductive reasoning to refute the creationist theories. Various views on divinity and the universe held by the Vedics, samkhyas, mīmāṃsās, Buddhists and other schools of thought were analyzed, debated and repudiated by various Jain Ācāryas. However, the most eloquent refutation of this view is provided by Ācārya Jinasena in Mahāpurāṇa, which was quoted by Carl Sagan in his 1980 book *Cosmos*.

1. Some foolish men declare that creator made the world. The doctrine that the world was created is ill advised and should be rejected.
2. If God created the world, where was he before the creation? If you say he was transcendent then and needed no support, where is he now? How could God have made this world without any raw material? If you say that he made this first, and then the world, you are faced with an endless regression.
3. If you declare that this raw material arose naturally you fall into another fallacy, for the whole universe might thus have been its own creator, and have arisen quite naturally.
4. If God created the world by an act of his own will, without any raw material, then it is just his will and nothing else — and who will believe this silly nonsense?

5. If he is ever perfect and complete, how could the will to create have arisen in him? If, on the other hand, he is not perfect, he could no more create the universe than a potter could.
6. If he is form-less, action-less and all-embracing, how could he have created the world? Such a soul, devoid of all modality, would have no desire to create anything.
7. If he is perfect, he does not strive for the three aims of man, so what advantage would he gain by creating the universe?
8. If you say that he created to no purpose because it was his nature to do so, then God is pointless. If he created in some kind of sport, it was the sport of a foolish child, leading to trouble.
9. If he created because of the karma of embodied beings (acquired in a previous creation), then he is not the Almighty Lord, but subordinate to something else.
10. If out of love for living beings and need of them he made the world, why did he not make creation wholly blissful free from misfortune?
11. If he were transcendent he would not create, for he would be free: Nor if involved in transmigration, for then he would not be almighty. Thus the doctrine that the world was created by God makes no sense at all.
12. And God commits great sin in slaying the children whom he himself created. If you say that he slays only to destroy evil beings, why did he create such beings in the first place?
13. Good men should combat the believer in divine creation, maddened by an evil doctrine. Know that the world is uncreated, as time itself is, without beginning or end, and is based on the principles, life and rest. Uncreated and indestructible, it endures under the compulsion of its own nature.

Saṃsāra (Jainism)

Saṃsāra (transmigration) in Jain philosophy, refers to the worldly life characterized by continuous rebirths and reincarnations in various realms of existence. *Saṃsāra* is described as mundane existence, full of suffering and misery and hence is considered undesirable and worth renunciation. The *Saṃsāra* is without any beginning and the soul finds itself in bondage with its karma since the beginning-less time. *Moksha* is the only way to be liberated from *saṃsāra*.

Influx of karmas (*asrava*)

According to the Jain text, Tattvartha sutra:

(There are two kinds of influx, namely) that of persons with passions, which extends transmigration, and that of persons free from passions, which prevents or shortens it.

— *Tattvārthsūtra* (6-4-81)^l

Activities that lead to the influx of karmas (*asrava*) which extends transmigration are:^[2]

- Five senses
- Four passions (*kaṣāya*)
 - Anger
 - Ego

- Deceit
- Greed
- The non-observance of the five vows
- Non-observance of the twenty-five activities like Righteousness

Samṣāra bhavanā

Jain texts prescribe meditation on twelve forms of reflection (*bhāvanā*) for those who wish to stop the above described *asrava*.^[3] One such reflection is *Samṣāra bhavanā*.

It has been described in one of the Jain text, *Sarvārthasiddhi* as:

Transmigration is the attainment of another birth by the self owing to the ripening of karmas. The five kinds of whirling round have been described already. He, who wanders in the endless cycle of births and deaths, undergoing millions of afflictions in innumerable wombs and families, takes different relationships such as father, brother, son, grandson, etc, or mother, sister, wife, daughter and so on, being propelled by the mechanism of karmas. The master becomes servant and the servant master, just as an actor acts several parts on the stage. To be brief, sometimes one becomes one's own son. There is no end to the transformations undergone by the self owing to the influence of karmas. Thus to reflect on the nature of mundane existence is contemplation on worldly existence. He who contemplates thus is alarmed at the miseries of transmigration and becomes disgusted with worldly existence. And he who is disgusted with it endeavours to free himself from it.

Champat Rai Jain, a 20th-century Jain writer in his book *The Practical Dharma* wrote:

Endless is the cycle of transmigration; painful is every form of life; there is no happiness in any of the four conditions of existence; devas, human beings, animals and residents of hells are all involved in pain and misery of some kind or other; moksha alone is blissful and free from pain; the wise should, therefore, only aspire for moksha; all other conditions are temporary and painful."

Kāla is a word used in Sanskrit to mean "time". It is also the name of a deity, in which sense it is not always distinguishable from *kāla*, meaning "black". It is often used as one of the various names or forms of Yama. But in Jainism, Kāla (काल) refers to a class of *piśāca* deities according to both the Digambara and Śvetāmbara traditions of Jainism. The *piśācas* refer to a category of *vyantaras* gods which represents one of the four classes of celestial beings (*devas*).

The deities such as Kālas are defined in ancient Jain cosmological texts such as the Saṃgrahaṇīratna in the Śvetāmbara tradition or the Tiloyapaṇṇati by Yativṛṣabha (5th century) in the Digambara tradition. Kāla participated in the war between Rāma and Rāvaṇa, on the side of the latter, as mentioned in Svayambhūdeva's Paumacariu (Padmacarita, Paumacariya or Rāmāyaṇapurāṇa) chapter 57ff. Svayambhū or Svayambhūdeva (8th or 9th century) was a Jain householder who probably lived in Karnataka. His work recounts the popular Rāma story as known from the older work Rāmāyaṇa (written by Vālmīki). Various chapters [mentioning Kāla] are dedicated to the humongous battle whose armies (known as *akṣauhiṇīs*) consisted of millions of soldiers, horses and elephants, etc.

What is the meaning of 'continuity /time' (*kāla*)? Duration of the existence of an entity is called time.

According to Tattvārthasūtra 1.8, “the categories and their details are undeferred in detail in terms of existence, number (enumeration), place or abode, extent of space touched (pervasion), continuity /time (*kāla*), interval of time, thought-activity, and reciprocal comparison”. Kāla refers to one of the two Indras (lords) of the Piśāca class of “peripatetic celestial beings” (*vyantara*), itself a main division of *devas* (celestial beings) according to the 2nd-century Tattvārthasūtra 4.6. Kāla and Mahākāla are the two lords in the class ‘goblin’ peripatetic celestial beings.

According to the 2nd-century Tattvārthasūtra 5.21.—Now many types of time (*kāla*) are there? There are two types of time, namely transcendental and practical time. What are the characteristics of the transcendental and practical types of time? The characteristic of transcendental time is *vartanā*. The characteristics of practical time are *pariṇāma*, *kriyā*, *paratva* and *aparatva*. How many types of practical time are there? It is of three types namely past, present and future.

According to, “time (*kāla*) also is a substance (*dravya*)”. What is duration of the substance time (*kāla*)? It is of infinite period duration. Why is time also said to be substance? Time is called a substance because all the characteristics of a substance are found in it. What is the peculiar characteristic of time? Hour, minutes etc are the characteristics of practical time while its ability to support change /transformation of all other substances is the characteristic from transcendental viewpoint. What are the distinguishing and generic attributes of time? Ability to support change

/transformation of all other substances is its distinguishing attribute while absence of consciousness, taste, touch etc are its generic attributes long with all the generic attributes of a substance.

Jainism is an Indian religion of Dharma whose doctrine revolves around harmlessness (*ahimsa*) towards every living being. The two major branches (Digambara and Svetambara) of Jainism stimulate self-control (or, *shramana*, 'self-reliance') and spiritual development through a path of peace for the soul to progress to the ultimate goal.

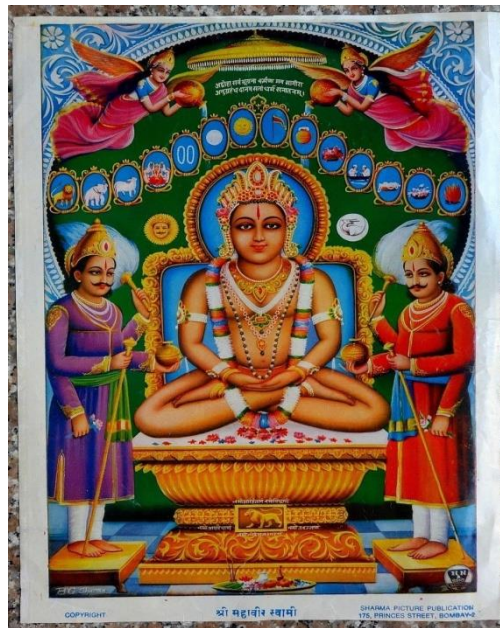
Etymology

Monier-Williams's widely used Sanskrit-English dictionary lists two distinct words with the form *kāla*.

- *kāla* 1 means "black, of a dark colour, dark-blue ..." and has a feminine form ending in *ī* – *kālī* – as mentioned in *Pāṇini* 4–1, 42.
- *kālā* 2 means "a fixed or right point of time, a space of time, time ... destiny, fate ... death" and has a feminine form (found at the end of compounds) ending in *ā*, as mentioned in the *ṛgveda Prātiśākhya*. As a traditional Hindu unit of time, one *kālā* corresponds to 144 seconds.

According to Monier-Williams, *kāla* 2 is from the verbal root *kal* "to calculate", while the root of *kāla* 1 is uncertain, though possibly the same.

As a deity



Head of Kala carved on top of Jabung temple niche, East Java, Indonesia.

As applied to gods and goddesses in works such as the *Devī Māhātmya* and the *Skanda Purāṇa*, *kāla* 1 and *kāla* 2 are not readily distinguishable. Thus Wendy Doniger, translating a conversation between *Śiva* and *Pārvatī* from the *Skanda Purāṇa*, says *Mahākāla* may mean " 'the Great Death' ... or 'the Great Black One' ". And *Swāmī Jagadīśvarānanda*, a Hindu translator of the *Devī Māhātmya*, renders the feminine compound *kāla-rātri* (where *rātri* means "night") as "dark night of periodic dissolution". As Time personified, destroying all things, Kala is a god of death sometimes identified with Yama.

In the epics and the Puranas

Kala appears as an impersonal deity within the Mahabharata, the Ramayana, and the Bhagavata Purana. In the Mahabharata, Krishna, one of the main characters, reveals his identity as Time personified. He states to Arjuna that both sides on the battlefield of the Kurukshetra War have already been annihilated. At the end of the epic, the entire Yadu dynasty (Krishna's family) is similarly annihilated. The story ends with Yudhishtira, the last of the Pandava brothers, entering Heaven in his human form, thereby closing the link. In Heaven, Yudi sees everyone within the story, both people whom he hated, and people whom he loved, and is happy to see them all. He then sees their transcendent cosmic forms, Krishna as Vishnu, Draupadi as Uma, and realizes that the participants in the play were merely gods in human form, engaging in pastimes and working out their karma. Yudi then abandons his bitterness and spends the rest of eternity in Heaven, it is a happy ending.

Kala appears in the Uttara Kanda of the Ramayana, as the messenger of Death (Yama). At the end of the story, Time, in the form of inevitability or necessity, informs Rama that his reign on Earth is now over. By a trick or dilemma, he forces the death of Lakshmana, and informs Rama that he must return to the realm of the gods. Lakshmana willingly passes away with Rama's blessing and Rama returns to Heaven.

Time appears in the Bhagavata Purana as the force that is responsible for the imperceptible and inevitable change in the entire creation. According to the Purana, all created things are illusory, and thereby subject to creation and annihilation, this imperceptible and inconceivable

impermanence is said to be due to the march of Time. Similarly, Time is considered to be the unmanifest aspect of God that remains after the destruction of the entire world at the end of a lifespan of Brahma.

In the Chaitanya Bhagavata, a Gaudiya Vaishnavist text and biography of Chaitanya Mahaprabhu, it is said that the fire that emerges from the mouth of Sankarshana at the End of Time is the *Kālānala*, or "fire of Time".^[6] One of the names of Sankarshana is *kālāgni*, also "fire of Time".

The Vishnu Purana also states that Time (kala) is one of the four primary forms of Vishnu, the others being matter (Pradhana), visible substance (vyakta), and Spirit (Purusha).

In the Bhagavad Gita

At Bhagavad Gita 11.32, Krishna takes on the form of *kāla*, the destroyer, announcing to Arjuna that all the warriors on both sides will be killed, apart from the Pandavas:

कालो ऽस्मि लोकक्षयकृत् प्रवृद्धो लोकान् समाहर्तुम् इह प्रवृत्तः ।

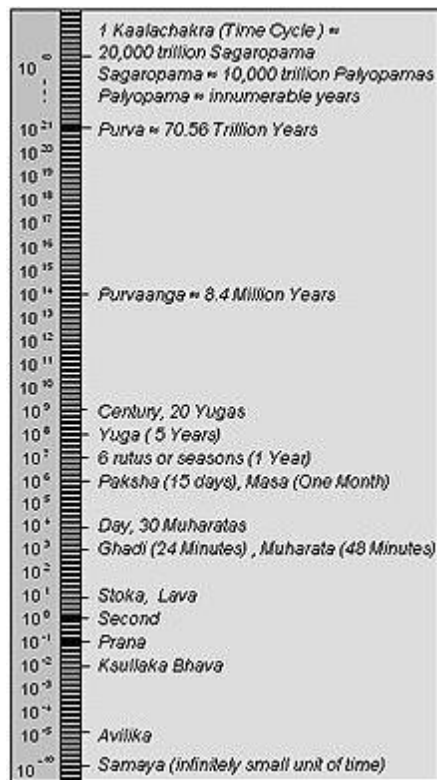
This verse means: "**Time (kāla) I am**, the great destroyer of the worlds, and I have come here to destroy all people". This phrase is famous for being quoted by J. Robert Oppenheimer as he reflected on the Manhattan Project's explosion of the first nuclear bomb in 1945.

In other cultures

In Javanese mythology, Batara Kala is the god of destruction. It is a very huge mighty and powerful god depicted as giant, born of the sperm of Shiva, the kings of gods.

In Borobudur, the gate to the stairs is adorned with a giant head, making the gate look like the open mouth of the giant. Many other gates in Javanese traditional buildings have this kind of ornament. Perhaps the most detailed Kala Face in Java is on the south side of Candi Kalasan.

As a Substance



Logarithmic scale of time used in Jain texts.

In Jainism, Kāla (Time) is infinite and is explained in two different ways:

- The measure of duration, known in the form of hours, days, like that.
- The cause of the continuity of function of things.

kalachakras in Jainism

However Jainism recognizes a very small measurement of time known as *samaya* which is an infinitely small part of a second. There are cycles (*kalachakras*) in it. Each cycle having two eras of equal duration described as the *avasarpini* and the *utsarpini*.

Surya Siddhanta

Surya Siddhanta is a Hindu text on astronomy. Above is verse 1.1, which pays homage to Brahma.

The *Surya Siddhanta* is the name of a Sanskrit treatise in Indian astronomy. The text has been updated several times in the past and the earliest update was found to be made in 8th millennium BCE. Using computer simulation, a match for the *Surya Siddhanta* latitudinal data was obtained

in the time frame of 7300-7800 BCE.^[2] The last update took place in the vicinity of 580 CE when Nakshatra data appears to have been updated by adding a fixed precessional increment to all longitudes. Narayanan (2011) showed that for determining the Sun's longitude, the pulsating Indian epicycle is far more accurate than the Greek eccentric-epicycle model and that the pulsating Indian epicycle for the Sun becomes progressively more accurate as one goes back in time. Peak accuracy, of about 1 minute of arc, is reached around 5200 BCE. This led him to the timing of 5000-5500BCE when the current values of the *Sūrya-siddhānta*'s pulsating epicycle parameters for the Sun appear to have been set. As per the second verse of the chapter 1 of *Surya Siddhanta*, Maya Asura is the original author of the text. It has fourteen chapters.

The *Surya Siddhanta* describes rules to calculate the motions of various planets and the moon relative to various constellations, diameters of various planets, and calculates the orbits of various astronomical bodies. The text asserts, according to Markanday and Srivatsava, that the earth is of a spherical shape.^[5] It treats earth as stationary globe around which sun orbits, and makes no mention of Uranus, Neptune or Pluto. It calculates the earth's diameter to be 8,000 miles (modern: 7,928 miles), diameter of moon as 2,400 miles (actual ~2,160) and the distance between moon and earth to be 258,000 miles (actual ~238,000). The text is known for some of earliest known discussion of sexagesimal fractions and trigonometric functions.

The *Surya Siddhanta* is one of the several astronomy-related Hindu texts. It represents a functional system that made reasonably accurate predictions. The text was influential on the solar year computations of the luni-solar Hindu calendar.

Textual history

In a work called the *Pañca-siddhāntikā* composed in the sixth century by Varāhamihira, five astronomical treatises are named and summarised: *Paulīśa-siddhānta*, *Romaka-siddhānta*, *Vasiṣṭha-siddhānta*, ***Sūrya-siddhānta***, and *Paitāmaha-siddhānta*. The surviving version of the text is dated to about the 6th-century BCE by Markandaya and Srivastava. Most scholars, however, had placed the text variously from the 4th-century to 5th-century CE. But this was the period when latest update to *Surya Siddhanta* was made with one of the earliest update being made in 8th millennium BCE.

According to John Bowman, another version of the text existed wherein it referenced sexagesimal fractions and trigonometric functions, but the text was a living document and revised through about the 10th-century. One of the evidence for the *Surya Siddhanta* being a

living text is the work of Indian scholar Utpala, who cites and then quotes ten verses from a version of *Surya Siddhanta*, but these ten verses are not found in any surviving manuscripts of the text.^[18] According to Kim Plofker, large portions of the more ancient *Sūrya-siddhānta* was incorporated into the *Panca siddhantika* text. Some scholars refer to *Panca siddhantika* as the old *Surya Siddhanta*.

Vedic influence

The *Surya Siddhanta* is a text on astronomy and time keeping, an idea that appears much earlier as the field of Jyotisha (Vedanga) of the Vedic period. The field of Jyotisha deals with ascertaining time, particularly forecasting auspicious day and time for Vedic rituals.^[21] Max Muller, quoting passages by Garga and others, states that the ancient Vedic texts describe four measures of time – savana, solar, lunar and sidereal, as well as twenty seven constellations using *Taras* (stars). According to Pingree, the idea of twenty eight constellations and movement of astronomical bodies already appears in the Hindu text *Atharvaveda*.

Similarities with Greek astronomy

It is hypothesized that there were cultural contacts between the Indian and Greek astronomers via cultural contact with Hellenistic Greece, specifically regarding the work of Hipparchus (2nd-century BCE). There were some similarities between *Surya Siddhanta* and Greek astronomy in Hellenistic period. For example, *Surya Siddhanta* provides table of sines function which parallel the Hipparchus table of chords, though the Indian calculations are more accurate and detailed. According to Alan Cromer, the knowledge share with Greeks may have occurred by about 100 BCE.

Astronomical calculations: Estimated time per sidereal revolution.

Planet	<i>Surya Siddhanta</i>	Ptolemy	20th-century
Mangala (Mars)	686 days, 23 hours, 56 mins, 23.5 secs	686 days, 23 hours, 56 mins, 56.1 secs	686 days, 23 hours, 30 mins, 41.4 secs
Budha (Mercury)	87 days, 23 hours, 16 mins, 22.3 secs	87 days, 23 hours, 16 mins, 42.9 secs	87 days, 23 hours, 15 mins, 43.9 secs
Brhaspati (Jupiter)	4,332 days, 7 hours, 41 mins, 44.4 secs	4,332 days, 18 hours, 10 mins, 10.5 secs	4,332 days, 14 hours, 2 mins, 8.6 secs

Shukra (Venus)	224 days, 16 hours, 45 mins, 56.2 secs	224 days, 16 hours, 51 mins, 56.8 secs	224 days, 16 hours, 49 mins, 8.0 secs
Shani (Saturn)	10,765 days, 18 hours, 33 mins, 13.6 secs	10,758 days, 17 hours, 48 mins, 14.9 secs	10,759 days, 5 hours, 16 mins, 32.2 secs

The influence of Greek ideas on early medieval era Indian astronomical theories, particularly zodiac symbols (astrology), is broadly accepted by scholars.^[23] According to Jayant Narlikar, the Vedic literature lacks astrology, the idea of nine planets and any theory that stars or constellation may affect an individual's destiny. One of the manuscripts of the *Surya Siddhanta* mentions deva Surya telling asura Maya to go to Rome with this knowledge I give you in the form of Yavana (Greek), states Narlikar.^[26] The astrology field likely developed in the centuries after the arrival of Greek astrology with Alexander the Great, their zodiac signs being nearly identical.^[21]

According to Pingree, the 2nd-century CE cave inscriptions of Nasik mention sun, moon and five planets in the same order as found in Babylon, but "there is no hint, however, that the Indian had learned a method of computing planetary positions in this period". In the 2nd-century CE, a scholar named Yavanesvara translated a Greek astrological text, and another unknown individual translated a second Greek text into Sanskrit. Thereafter started the diffusion of Greek and Babylonian ideas on astronomy and astrology into India, states Pingree.^[30] The other evidence of European influential on the Indian thought is *Romaka Siddhanta*, a title of one of the Siddhanta texts contemporary to *Surya Siddhanta*, a name that betrays its origin and probably was derived from a translation of a European text by Indian scholars in Ujjain, then the capital of an influential central Indian large kingdom.

According to John Roche – a professor of Mathematics with publications on the history of measurement, the astronomical and mathematical methods developed by Greeks related arcs to chords of spherical trigonometry. The Indian mathematical astronomers, in their texts such as *Surya Siddhanta* developed other linear measures of angles, made their calculations differently, "introduced the versine, which is the difference between the radius and cosine, and discovered various trigonometrical identities. For instance, states Roche, "where the Greeks had adopted 60 relative units for the radius, and 360 for circumference", the Indians chose 3,438 units and 60x360 for the circumference thereby calculating the "ratio of circumference to diameter [π , π] of about 3.1414.

The tradition of Hellenistic astronomy ended in the West after Late Antiquity. According to Cromer, the *Surya Siddhanta* and other Indian texts reflect the primitive state of Greek science, nevertheless played an important part in the history of science, through its translation in Arabic and stimulating the Arabic sciences. According to a study by Dennis Duke that compares Greek models with Indian models based on the oldest Indian manuscripts such as the *Surya Siddhanta* with fully described models, the Greek influence on Indian astronomy is strongly likely to be pre-Ptolemaic.

The *Surya Siddhanta* was one of the two books in Sanskrit translated into Arabic in the later half of the eighth century during the reign of Abbasid caliph Al-Mansur. According to Muzaffar Iqbal, this translation and that of Aryabhatta was of considerable influence on geographic, astronomy and related Islamic scholarship.

Contents

The contents of the *Surya Siddhanta* is written in classical Indian poetry tradition, where complex ideas are expressed lyrically with a rhyming meter in the form of a terse *shloka*. This method of expressing and sharing knowledge made it easier to remember, recall, transmit and preserve knowledge. However, this method also meant secondary rules of interpretation, because numbers don't have rhyming synonyms. The creative approach adopted in the *Surya Siddhanta* was to use symbolic language with double meanings. For example, instead of one, the text uses a word that means moon because there is one moon. To the skilled reader, the word moon means the number one. The entire table of trigonometric functions, sine tables, steps to calculate complex orbits, predict eclipses and keep time are thus provided by the text in a poetic form. This cryptic approach offers greater flexibility for poetic construction.

The *Surya Siddhanta* thus consists of cryptic rules in Sanskrit verse. It is a compendium of astronomy that is easier to remember, transmit and use as reference or aid for the experienced, but does not aim to offer commentary, explanation or proof. The text has 14 chapters and 500 shlokas. It is one of the eighteen astronomical siddhanta (treatises), but thirteen of the eighteen are believed to be lost to history. The *Surya Siddhanta* text has survived since the ancient times, has been the best known and the most referred astronomical text in the Indian tradition.

The fourteen chapters of the *Surya Siddhanta* are as follows, per the much cited Burgess translation.

Chapters of *Surya Siddhanta*

Chapter #	Title	Reference
1	Of the Mean Motions of the Planets	[37]
2	On the True Places of the Planets	[38]
3	Of Direction, Place and Time	[39]
4	Of Eclipses, and Especially of Lunar Eclipses	[40]
5	Of Parallax in a Solar Eclipse	[41]
6	The Projection of Eclipses	[42]
7	Of Planetary Conjunctions	[43]
8	Of the Asterisms	[44]
9	Of Heliacal (Sun) Risings and Settings	[45]
10	The Moon's Risings and Settings, Her Cusps	[46]
11	On Certain Malignant Aspects of the Sun and Moon	[47]
12	Cosmogony, Geography, and Dimensions of the Creation	[48]
13	Of the Armillary Sphere and other Instruments	
14	Of the Different Modes of Reckoning Time	

The methods for computing time using the shadow cast by a gnomon are discussed in both Chapters 3 and 13.

North pole star and South pole star

One of the most interesting observation made in *Surya Siddhanta* is the observation of two pole stars, one each at north and south celestial pole. *Surya Siddhanta* chapter 12 verse 42 description is as following:

मेरोरुभयतो मध्ये ध्रुवतारे नभःस्थिते।

निरक्षदेशसंस्थानामुभये क्षितिजाश्रिते॥१२:४३॥

This translates as "There are two pole stars, one each, near North celestial pole and South celestial pole. From equatorial regions, these stars are seen along the horizon".Currently our

North Pole star is Polaris. It is subject to investigation to find out when this astronomical phenomenon occurred in the past to date the addition of this particular update to *Surya Siddhanta*.

Calculation of Earth's Obliquity

In *Surya Siddhanta* chapter 2 and verse 28, it calculated the obliquity of the Earth's axis. The verse says "*The sine of greatest declination(obliquity) is 1397.....*", which means that R-sine is 1397 where R is 3438. To obtain the obliquity in the unit of degree, we have to take the inverse of Sine of the ratio (1397/3438), which gives us 23.975182 degrees and this tilt indicates a period of 3000 BCE^[53]. It can be noted that this update was made during 3000 BCE to the *Surya Siddhanta*.

Planets and their characteristics

Earth is a sphere

Thus everywhere on [the surface of] the terrestrial globe,
people suppose their own place higher [than that of others],
yet this globe is in space where there is no above nor below.

—*Surya Siddhanta, XII.53*

Translator: Scott L. Montgomery, Alok Kumar

The text treats earth as a stationary globe around which sun, moon and five planets orbit. It makes no mention of Uranus, Neptune and Pluto. It presents mathematical formulae to calculate the orbits, diameters, predict their future locations and cautions that the minor corrections are necessary over time to the formulae for the various astronomical bodies. However, unlike modern heliocentric model for the solar system, the *Surya Siddhanta* relies on a geocentric point of view.^[55]

The text describes some of its formulae with the use of very large numbers for *divya yuga*, stating that at the end of this *yuga* earth and all astronomical bodies return to the same starting point and the cycle of existence repeats again. These very large numbers based on *divya-yuga*, when divided and converted into decimal numbers for each planet give reasonably accurate sidereal periods when compared to modern era western calculations.^[56] For example, the *Surya Siddhanta* states that the sidereal period of moon is 27.322 which compares to 27.32166 in modern calculations. For Mercury it states the period to be 87.97 (modern W: 87.969), Venus

224.7 (W: 224.701), Mars as 687 (W: 686.98), Jupiter as 4,332.3 (W: 4,332.587) and Saturn to be 10,765.77 days (W: 10,759.202).

Calendar

The solar part of the luni-solar Hindu calendar is based on the *Surya Siddhanta*. The various old and new versions of *Surya Siddhanta* manuscripts yield the same solar calendar. According to J. Gordon Melton, both the Hindu and Buddhist calendars in use in South and Southeast Asia are rooted in this text, but the regional calendars adapted and modified them over time.

The *Surya Siddhanta* calculates the solar year to be 365 days 6 hours 12 minutes and 36.56 seconds. On average, according to the text, the lunar month equals 27 days 7 hours 39 minutes 12.63 seconds. It states that the lunar month varies over time, and this needs to be factored in for accurate time keeping.

According to Whitney, the *Surya Siddhanta* calculations were tolerably accurate and achieved predictive usefulness. In Chapter 1 of *Surya Siddhanta*, states Whitney, "the Hindu year is too long by nearly three minutes and a half; but the moon's revolution is right within a second; those of Mercury, Venus and Mars within a few minutes; that of Jupiter within six or seven hours; that of Saturn within six days and a half".

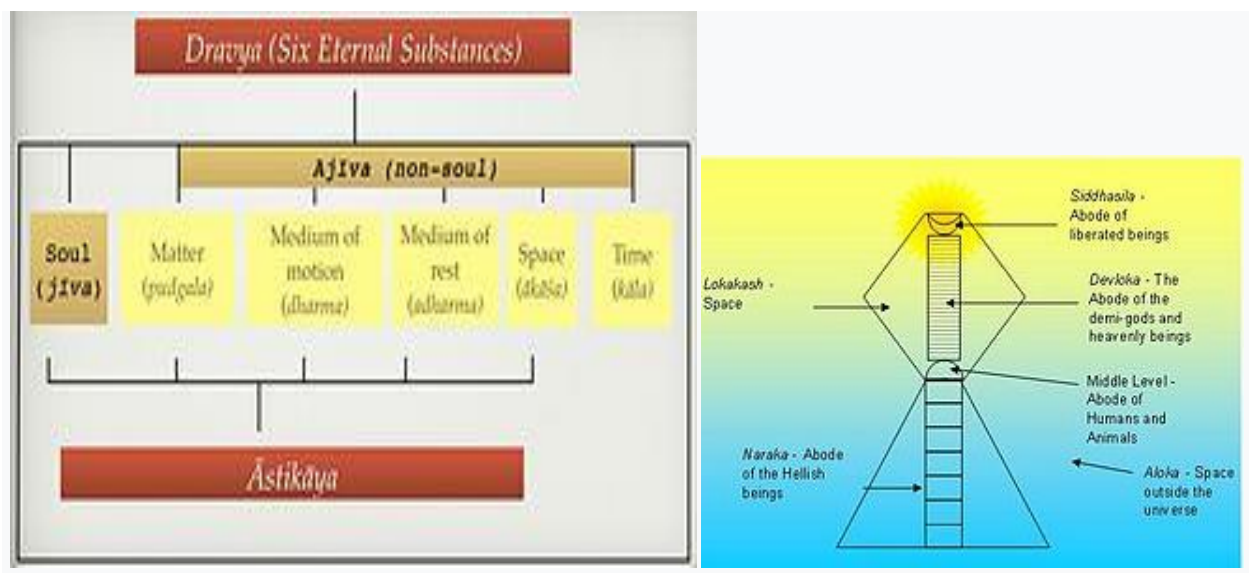


Chart showing the classification of *dravya* and *astikaya*

According to Jains, the Universe is made up of six simple and eternal substances called *dravya* which are broadly categorized under Jiva (Living Substances) and Ajiva (Non Living Substances) as follows:

Jīva (Living Substances)

- *Jīva* i.e. Souls – *Jīva* exists as a reality, having a separate existence from the body that houses it. It is characterised by *chetana* (consciousness) and *upayoga* (knowledge and perception). Though the soul experiences both birth and death, it is neither really destroyed nor created. Decay and origin refer respectively to the disappearing of one state of soul and appearing of another state, these being merely the modes of the soul. Jiva are classified on bases of sense, so there are of 5 types: 1) with one sense (sparshendriya) 2) 2 senses (1st included and raasendriya) 3) 3 senses (1st 2 included and dharnendriya) 4) 4 senses (1st 3 included and chkshuendriya) 5) 5 senses (1st 4 included and shrotendriya)

Ajīva (Non-Living Substances)

- *Pudgala* (Matter) – Matter is classified as solid, liquid, gaseous, energy, fine Karmic materials and extra-fine matter i.e. ultimate particles. *Paramāṇu* or ultimate particle is the basic building block of all matter. The *Paramāṇu* and *Pudgala* are permanent and indestructible. Matter combines and changes its modes but its basic qualities remain the same. According to Jainism, it cannot be created, nor destroyed.
- *Dharmastikaay* or *Dharma-dravya* (Principle of Motion) and *Adharmastikaay* or *Adharma-dravya* (Principle of Rest) – *Dharmastikāya* and *Adharmastikāya* are distinctly peculiar to Jaina system of thought depicting the principle of Motion and Rest. They are said to pervade the entire universe. *Dharmastikaay* and *Adharmastikaay* are by itself not motion or rest but mediate motion and rest in other bodies. Without *Dharmastikāya* motion is not possible and without *Adharmastikāya* rest is not possible in the universe.
- *Ākāśa* (Space) – Space is a substance that accommodates the living souls, the matter, the principle of motion, the principle of rest and time. It is all-pervading, infinite and made of infinite space-points.
- *Kāla* (Time) – *Kāla* is an eternal substance according to Jainism and all activities, changes or modifications can be achieved only through the progress of time. According to the Jain text, *Dravyasaṃgraha*:

Conventional time (*vyavahāra kāla*) is perceived by the senses through the transformations and modifications of substances. Real time (*niścaya kāla*), however, is the cause of imperceptible, minute changes (called *varṭanā*) that go on incessantly in all substances.

—*Dravyasaṃgraha* (21)

Structure of the Universe: The Jain doctrine postulates an eternal and ever-existing world which works on universal natural laws. The existence of a creator deity is overwhelmingly opposed in the Jain doctrine. *Mahāpurāṇa*, a Jain text authored by *Ācārya Jinasena* is famous for this quote:

Some foolish men declare that a creator made the world. The doctrine that the world was created is ill advised and should be rejected. If God created the world, where was he before the creation? If you say he was transcendent then and needed no support, where is he now? How could God have made this world without any raw material? If you say that he made this first, and then the world, you are faced with an endless regression.

According to Jains, the universe has a firm and an unalterable shape, which is measured in the Jain texts by means of a unit called *Rajlok*, which is supposed to be very large. The Digambara sect of Jainism postulates that the universe is fourteen *Rajloks* high and extends seven *Rajloks* from north to south. Its breadth is seven *Rajloks* long at the bottom and decreases gradually towards the middle, where it is one *Rajlok* long. The width then increases gradually until it is five *Rajloks* long and again decreases until it is one *Rajlok* long. The apex of the universe is one *Rajlok* long, one *Rajlok* wide and eight *Rajloks* high. The total space of the world is thus 343 cubic *Rajloks*. The Svetambara view differs slightly and postulates that there is a constant increase and decrease in the breadth, and the space is 239 cubic *Rajlok*. Apart from the apex, which is the abode of liberated beings, the universe is divided into three parts. The world is surrounded by three atmospheres: dense-water, dense-wind and thin-wind. It is then surrounded by an infinitely large non-world which is completely empty.

The whole world is said to be filled with living beings. In all three parts, there is the existence of very small living beings called nigoda. Nigoda are of two types: nitya-nigoda and Itara-nigoda. Nitya-nigoda are those which will reincarnate as nigoda throughout eternity, where as Itara-nigoda will be reborn as other beings. The mobile region of universe (Trasnaadi) is one *Rajlok* wide, one *Rajlok* broad and fourteen *Rajloks* high. Within this region, there are animals and plants everywhere, where as Human beings are restricted to 2 continents of the

middle world. The beings inhabiting the lower world are called Narak (Hellish beings). The Deva (roughly demi-gods) live in the whole of the top and middle worlds, and top three realms of the lower world. Living beings are divided in fourteen classes (Jivasthana) : Fine beings with one sense, crude beings with one sense, beings with two senses, beings with three senses, beings with four senses, beings with five senses and no mind, and beings with five senses and a mind. These can be under-developed or developed, a total of 14. Human beings can get any form of existence, and are the only ones which can attain salvation.

Three lokas



Fourteen *Rajlok* or Triloka. Shape of Universe as per Jain cosmology in form of a cosmic man. Miniature from 17th century, *Samgrahaṇīratna* by Śrīcandra, in Prakrit with a Gujarati commentary. Jain Śvetāmbara cosmological text with commentary and illustrations.

The early Jains contemplated the nature of the earth and universe. They developed a detailed hypothesis on the various aspects of astronomy and cosmology. According to the Jain texts, the universe is divided into 3 parts.

- *Urdhva Loka* – the realms of the gods or heavens
- *Madhya Loka* – the realms of the humans, animals and plants
- *Adho Loka* – the realms of the hellish beings or the infernal regions

The following Upanga āgamas describe the Jain cosmology and geography in a great detail:

1. *Sūryaprajñapti* – Treatise on Sun
2. *Jambūdvīpaprajñapti* – Treatise on the island of Roseapple tree; it contains a description of Jambūdvī and life biographies of *Ṛṣabha* and King Bharata
3. *Candraprajñapti* – Treatise on moon

Additionally, the following texts describe the Jain cosmology and related topics in detail:

1. *Trilokasāra* – Essence of the three worlds (heavens, middle level, hells)
2. *Trilokaprajñapti* – Treatise on the three worlds
3. *Trilokadipikā* – Illumination of the three worlds
4. *Tattvārthasūtra* – Description on nature of realities
5. *Kṣetrasamasa* – Summary of Jain geography
6. *Bruhatsamgrahni* – Treatise on Jain cosmology and geography

Urdhva Loka, the upper world

Upper World (*Urdhva loka*) is divided into different abodes and are the realms of the heavenly beings (demi-gods) who are non-liberated souls.

Upper World is divided into sixteen Devalokas, nine Graiveyaka, nine Anudish and five Anuttar abodes. Sixteen Devaloka abodes are Saudharma, Aishana, Sanatkumara, Mahendra, Brahma, Brahmottara, Lantava, Kapishta, Shukra, Mahashukra, Shatara, Sahasrara, Anata, Pranata, Arana and Achyuta. Nine Graiveyak abodes are Sudarshan, Amogh, Suprabuddha, Yashodhar, Subhadra, Suvishal, Sumanas, Saumanas and Pritikar. Nine Anudish are Aditya, Archi, Archimalini, Vair, Vairochan, Saum, Saumrup, Ark and Sphatik. Five Anuttar are Vijaya, Vijayanta, Jayanta, Aparajita and Sarvarthasiddhi.

The sixteen heavens in Devalokas are also called Kalpas and the rest are called Kalpatit. Those living in Kalpatit are called Ahamindra and are equal in grandeur. There is increase with regard to the lifetime, influence of power, happiness, lumination of body, purity in thought-colouration,

capacity of the senses and range of clairvoyance in the Heavenly beings residing in the higher abodes. But there is decrease with regard to motion, stature, attachment and pride. The higher groups, dwelling in 9 Greveyak and 5 Anutar Viman. They are independent and dwelling in their own vehicles. The anuttara souls attain liberation within one or two lifetimes. The lower groups, organized like earthly kingdoms—rulers (Indra), counselors, guards, queens, followers, armies etc. Above the Anutar vimans, at the apex of the universe is the realm of the liberated souls, the perfected omniscient and blissful beings, who are venerated by the Jains.

Madhya Loka, the middle world



map of Jambudvipa - Jain Cosmology/Early 19th-century painting depicting map of 2 ½ continents

Structure of Universe according to the Jain scriptures.

Depiction of Mount Meru at Jambudweep, Hastinapur

Madhya Loka consists of 900 yojans above and 900 yojans below earth surface. It is inhabited by

1. *Jyotishka devas* (luminous gods) – 790 to 900 yojans above earth
2. Humans, Tiryanach (Animals, birds, plants) on the surface
3. *Vyantar devas* (Intermediary gods) – 100 yojan below the ground level

Madhyaloka consists of many continent-islands surrounded by oceans, first eight whose names are:

Continent/ Island	Ocean
<i>Jambūdīvā</i>	<i>Lavanoda (Salt – ocean)</i>
<i>Ghatki Khand</i>	<i>Kaloda (Black sea)</i>
<i>Puskarvardvīpa</i>	<i>Puskaroda (Lotus Ocean)</i>

<i>Varunvardvīpa</i>	<i>Varunoda (Varun Ocean)</i>
<i>Kshirvardvīpa</i>	<i>Kshiroda (Ocean of milk)</i>
<i>Ghrutvardvīpa</i>	<i>Ghrutoda (Butter milk ocean)</i>
<i>Ikshuwardvīpa</i>	<i>Iksuvaroda (Sugar Ocean)</i>
<i>Nandishwardvīpa</i>	<i>Nandishwaroda</i>

Mount Meru (also *Sumeru*) is at the centre of the world surrounded by Jambūdīvīpa,^[8] in form of a circle forming a diameter of 100,000 yojans. There are two sets of sun, moon and stars revolving around Mount Meru; while one set works, the other set rests behind the Mount Meru.



Work of Art showing maps and diagrams as per Jain Cosmography from 17th century CE Manuscript of 12th century Jain text *Sankhitta Sangheyan*

Jambūdīvīpa continent has 6 mighty mountains, dividing the continent into 7 zones (Ksetra).

The names of these zones are:

1. Bharat Kshetra
2. Mahavideh Kshetra
3. Airavat Kshetra
4. Ramyak Kshetra
5. Hiranya vant Kshetra
6. Hemvant Kshetra
7. Hari Varsh Kshetra

The three zones i.e. Bharat Kshetra, Mahavideh Kshetra and Airavat Kshetra are also known as Karma bhoomi because practice of austerities and liberation is possible and the

Tirthankaras preach the Jain doctrine. The other four zones, Ramyak, Hairanyvat Kshetra, Haimava Kshetra and Hari Kshetra are known as akarmabhoomi or bhogbhumi as humans live a sinless life of pleasure and no religion or liberation is possible.

Nandishvara Dvipa is not the edge of cosmos, but it is beyond the reach of humans.^[8] Humans can reside only on *Jambudvipa*, *Dhatatikhandha Dvipa*, and the inner half of *Pushkara Dvipa*.

Adho Loka, the lower world



17th century cloth painting depicting seven levels of Jain hell and various tortures suffered in them. Left panel depicts the demi-god and his animal vehicle presiding over the each hell.

The lower world consists of seven hells, which are inhabited by Bhavanapati demigods and the hellish beings. Hellish beings reside in the following hells:

1. Ratna prabha-dharma.
2. Sharkara prabha-vansha.
3. Valuka prabha-megha.
4. Pank prabha-anjana.
5. Dhum prabha-arista.
6. Tamah prabha-maghavi.
7. Mahatamah prabha-maadhavi

According to Jainism, time is beginningless and eternal. The *Kālacakra*, the cosmic wheel of time, rotates ceaselessly. The wheel of time is divided into two half-rotations, *Utsarpiṇī* or

ascending time cycle and *Avasarpinī*, the descending time cycle, occurring continuously after each other. *Utsarpinī* is a period of progressive prosperity and happiness where the time spans and ages are at an increasing scale, while *Avsarpinī* is a period of increasing sorrow and immorality with decline in timespans of the epochs. Each of this half time cycle consisting of innumerable period of time (measured in *sagaropama* and *palyopama* years) is further sub-divided into six *aras* or epochs of unequal periods. Currently, the time cycle is in *avasarpinī* or descending phase with the following epochs.

Name of the Ara	Degree of happiness	Duration of Ara	Maximum height of people	Maximum lifespan of people
<i>Suṣama-suṣamā</i>	Utmost happiness and no sorrow	400 trillion <i>sāgaropamas</i>	Six miles tall	Three Palyopam years
<i>Suṣamā</i>	Moderate happiness and no sorrow	300 trillion <i>sāgaropamas</i>	Four miles tall	Two Palyopam Years
<i>Suṣama-duḥṣamā</i>	Happiness with very little sorrow	200 trillion <i>sāgaropamas</i>	Two miles tall	One Palyopam Years
<i>Duḥṣama-suṣamā</i>	Happiness with little sorrow	100 trillion <i>sāgaropamas</i>	1500 meters	84 Lakh Purva
<i>Duḥṣamā</i>	Sorrow with very little happiness	21,000 years	7 hatha	120 years
<i>Duḥṣama-duḥṣamā</i>	Extreme sorrow and misery	21,000 years	1 hatha	20 years

In *utsarpinī* the order of the eras is reversed. Starting from *duṣamā-duṣamā*, it ends with *suṣamā-suṣamā* and thus this never ending cycle continues.^[18] Each of these aras progress into the next phase seamlessly without any apocalyptic consequences. The increase or decrease in the happiness, life spans and length of people and general moral conduct of the society changes in a phased and graded manner as the time passes. No divine or supernatural beings are credited or responsible with these spontaneous temporal changes,

either in a creative or overseeing role, rather human beings and creatures are born under the impulse of their own *karmas*

Salakapurusa

According to Jain texts, sixty-three illustrious beings, called *śalākāpuruṣas*, are born on this earth in every *Dukhama-sukhamā ara*. The Jain universal history is a compilation of the deeds of these illustrious persons. They comprise twenty-four *Tīrthaṅkaras*, twelve *chakravartins*, nine *balabhadra*, nine *narayana*, and nine *pratinarayana*. A *chakravartī* is an emperor of the world and lord of the material realm.^[20] Though he possesses worldly power, he often finds his ambitions dwarfed by the vastness of the cosmos. Jain *puranas* give a list of twelve *chakravartins* (universal monarchs). They are golden in complexion. One of the *chakravartins* mentioned in Jain scriptures is Bharata Chakravartin. Jain texts like *Harivamsa Purana* and Hindu Texts like *Vishnu Purana* state that Indian subcontinent came to be known as *Bharata varsha* in his memory.

There are nine sets of *balabhadra*, *narayana*, and *pratinarayana*. The *balabhadra* and *narayana* are brothers. *Balabhadra* are nonviolent heroes, *narayana* are violent heroes, and *pratinarayana* the villains. According to the legends, the *narayana* ultimately kill the *pratinarayana*. Of the nine *balabhadra*, eight attain liberation and the last goes to heaven. On death, the *narayana* go to hell because of their violent exploits, even if these were intended to uphold righteousness

Jain cosmology divides the worldly cycle of time into two parts (*avasarpinī* and *utsarpinī*). According to Jain belief, in every half-cycle of time, twenty-four *tīrthaṅkaras* are born in the human realm to discover and teach the Jain doctrine appropriate for that era. The word *tīrthaṅkara* signifies the founder of a *tirtha*, which means a fordable passage across a sea. The *tīrthaṅkaras* show the 'fordable path' across the sea of interminable births and deaths. Rishabhanatha is said to be the first *tīrthaṅkara* of the present half-cycle (*avasarpinī*). Mahāvīra (6th century BC) is revered as the twenty fourth *tīrthaṅkara* of *avasarpinī*. Jain texts state that Jainism has always existed and will always exist.

During each motion of the half-cycle of the wheel of time, 63 *Śalākāpuruṣa* or 63 illustrious men, consisting of the 24 *Tīrthaṅkaras* and their contemporaries regularly appear.^{[34][16]} The

Jain universal or legendary history is basically a compilation of the deeds of these illustrious men. They are categorised as follows:

- 24 Tīrthaṅkaras – The 24 Tīrthaṅkaras or the supreme ford makers appear in succession to activate the true religion and establish the community of ascetics and laymen.
- 12 Chakravartins – The Chakravartīs are the universal monarchs who rule over the six continents.
- 9 Balabhadras who lead an ideal Jain life.e.g. Lord Rama
- 9 *Narayana* or *Vasudev* (heroes)
- 9 *Prati-Naryana* or *Prati-Vasudev* (anti-heroes) – They are anti-heroes who are ultimately killed by the *Narayana*.

Balabhadra and *Narayana* are half brothers who jointly rule over three continents.

Besides these a few other important classes of 106 persons are recognized:-

- 9 Naradas
- 11 Rudras¹
- 24 Kamdevas
- 24 Fathers of the Tirthankaras.
- 24 Mothers of the Tirthankaras.
- 14 *Kulakara* (patriarchs)



The Prakrit name *Jambudīpasi* (Sanskrit "Jambudvīpa") for "India" in the Sahasram Minor Rock Edict of Ashoka, circa 250 BCE (Brahmi script).

Jambudvīpa (Sanskrit: जम्बुद्वीप) is the dvīpa ("island" or "continent") of the terrestrial world, as envisioned in the cosmologies of Hinduism, Buddhism, and Jainism, which is the realm where ordinary human beings live.

The word Jambudvīpa literally refers to "the land of Jambu trees" where jambu (also known as jamun) is the Indian Blackberry (*Syzygium cumini*) and dvīpa has two meanings "island" or "continent" and "planets" situated in the ocean of outer space.

"The planets are called dvīpas. Outer space is like an ocean of air. Just as there are islands in the watery ocean, these planets in the ocean of space are called dvīpas, or islands in outer space" (Chaitanya Caritamrita Madhya 20.218, Purport)



Map of Jambudvipa

According to Puranic cosmography, the world is divided into seven concentric island continents (*sapta-dvīpa vasumati*) separated by the seven encircling oceans, each double the size of the preceding one (going out from within). The seven continents of the Puranas are stated as **Jambudvīpa**, Plaksadvīpa, Salmalidvīpa, Kusadvīpa, Krouncadvīpa, Sakadvīpa, and Pushkaradvīpa. Seven intermediate oceans consist of salt-water, sugarcane juice, wine, ghee, yogurt, milk and water respectively. The mountain range called Lokaloka, meaning "world-no-world", stretches across this final sea, delineating the known world from the dark void.

Continent Jambudvīpa (*Indian Blackberry Island*), also known as *Sudarshanadvīpa*, forms the innermost concentric island in the above scheme. Its name is said to derive from a Jambu tree (another name for the Indian Blackberry). The fruits of the Jambu tree are said, in the Viṣṇupurāṇa (ch.2) to be as large as elephants and when they become rotten and fall upon the crest of the mountains, a river of juice is formed from their expressed juice. The river so formed is called Jambunadi (Jambu river) and flows through Jambudvīpa, whose inhabitants drink its waters. Insular continent Jambudvīpa is said to comprise nine *varshas* (zones) and eight significant *parvatas* (mountains).

Markandeya Purana portrays Jambudvīpa as being depressed on its south and north and elevated and broad in the middle. The elevated region forms the varsha named *Ila-vṛta* or *Meruvarsha*. At the center of *Ila-vṛta* lies the golden Mount Meru, the king of mountains. On the summit of Mount Meru, is the vast city of Lord Brahma, known as *Brahmapuri*. Surrounding *Brahmapuri* are 8 cities - the one of Lord Indra and of seven other *Devatas*.

Markandeya Purana and Brahmanda Purana divide Jambudvīpa into four vast regions shaped like four petals of a lotus with Mount Meru being located at the center like a pericarp. The city of *Brahmapuri* is said to be enclosed by a river, known as *Akash Ganga*. *Akash Ganga* is said to issue forth from the foot of Lord Vishnu and after washing the lunar region falls "through the skies" and after encircling the *Brahmapuri* "splits up into four mighty streams", which are said to flow in four opposite directions from the landscape of Mount Meru and irrigate the vast lands of Jambudvīpa.

The common names of the dvīpas, having their varṣas (9 for Jambu-dvīpa, 7 for the other dvīpas) with a mountain and a river in each varṣa, is given in several Purāṇas.^[7] There is a distinct set of names provides, however, in other Purāṇas.^[8] The most detailed geography is that described in the *Vāyu Purāṇa*.

The Buddhist cosmology divides the *bhūmaṇḍala* (circle of the earth) into three separate levels: *Kāmadhātu* (Desire realm), *Rūpadhātu* (Form realm), and *Ārūpyadhātu* (Formless realm). In the *Kāmadhātu* is located Mount Sumeru which is said to be surrounded by four island-continent. "The southernmost island is called Jambudvīpa". The other three continents of Buddhist accounts around Sumeru are not accessible to humans from Jambudvīpa. Jambudvīpa is shaped like a triangle with a blunted point facing south, somewhat like the Indian subcontinent. In its center is a gigantic Jambu tree from which the continent takes its name, meaning "Jambu Island".

Jambudīpa, one of the four Mahādīpas, or great continents, which are included in the Cakkavāla and are ruled by a Cakkavatti. They are grouped round Mount Sineru. In Jambudīpa is Himavā with its eighty-four thousand peaks, its lakes, mountain ranges, etc.

This continent derives its name from the Jambu-tree (also called Naga) which grows there, its trunk fifteen yojanas in girth, its outspreading branches fifty yojanas in length, its shade one

hundred yojanas in extent and its height one hundred yojanas (Vin.i.30; SNA.ii.443; Vsm.i.205f; Sp.i.119, etc.) On account of this tree, Jambudīpa is also known as Jambusanda (SN.vs.552; SNA.i.121). The continent is ten thousand yojanas in extent; of these ten thousand, four thousand are covered by the ocean, three thousand by the Himālaya mountains, while three thousand are inhabited by men (SNA.ii.437; UdA.300).

Jambudvīpa is the region where the humans live and is the only place where a being may become enlightened by being born as a human being. It is in Jambudvīpa that one may receive the gift of Dharma and come to understand the Four Noble Truths, the Noble Eightfold Path and ultimately realize the liberation from the cycle of life and death. Another reference is from the Buddhist text Mahavamsa, where the emperor Ashoka's son Mahinda introduces himself to the Sri Lankan king Devanampiyatissa as from Jambudvipa, referring to what is now the Indian subcontinent. This is Based In the Kṣitigarbha Sūtra in the Mahayana.

In Jainism[edit]

Main article: Jain cosmology



Image depicting map of Jambudvīpa as per Jain Cosmology.. A carving depicting Jambūdīvpa " in Ranakpur

According to Jain cosmology, Jambūdīvpa is at the centre of Madhyaloka, or the middle part of the universe, where the humans reside. *Jambūdīvpaṇṇapti* or the treatise on the island of Roseapple tree contains a description of Jambūdīvpa and life biographies of *Rṣabha* and King Bharata. *Trilokasāra* (Essence of the three worlds), *Trilokaprajñapti* (Treatise on the three

worlds), *Trilokadipikā* (Illumination of the three worlds) and *Kṣetrasamāsa* (Summary of Jain geography) are the other texts that provide the details of Jambūdvīpa and Jain cosmology. Madhyaloka consists of many continent-islands surrounded by oceans, first eight whose names are:

Continent/ Island	Ocean
<i>Jambūdvīpa</i>	<i>Lavanoda (Salt - ocean)</i>
<i>Dhatki Khand</i>	<i>Kaloda (Black sea)</i>
<i>Puskarvardvīpa</i>	<i>Puskaroda (Lotus Ocean)</i>
<i>Varunvardvīpa</i>	<i>Varunoda (Varun Ocean)</i>
<i>Kshirvardvīpa</i>	<i>Kshiroda (Ocean of milk)</i>
<i>Ghrutvardvīpa</i>	<i>Ghrutoda (Ghee ocean)</i>
<i>Ikshuvardvīpa</i>	<i>Iksuvaroda (Ocean of Sugarcane Juice)</i>
<i>Nandishwardvīpa</i>	<i>Nandishwaroda</i>

Mount Meru is at the centre of the world surrounded by Jambūdvīpa, in form of a circle forming a diameter of 100,000 yojanas.^[10]

Jambūdvīpa continent has 6 mountains, dividing the continent into 9 zones (Kshetra). The names of these zones are:

1. Bharat Kshetra
2. Mahavideha Kshetra
3. Airavat Kshetra
4. Ramyakwas
5. Hariwas
6. Hairanyvat Kshetra
7. Haimavat Kshetra
8. Devkuru
9. Uttarkuru

Architecture

Jambudweep Jain tirtha in Hastinapur, constructed under supervision of Gyanmati Mataji, is a depiction of *Jambudvipa* as per Jain cosmology. The term 'Jambudvipa' is used by Ashoka perhaps to represent his realm in 3rd century BC, same terminology is then repeated in subsequent inscriptions for instance Mysorean inscription from the tenth century AD which also describes the region, presumably India, as 'Jambudvipa'.

The Kuntala country (which included the north-western parts of Mysore and the southern parts of the Bombay Presidency) was ruled by the Nava-Nanda, Gupta-kula, Maurya kings ; then the Rattas ruled it : after whom were the Chalukyas; then the Kalachurya family; and after them the (Hoysala) Ballalas.' Another, at Kubatur, expressly states that Chandra Gupta ruled the Naga-khanda in the south of the Bharata-kshetra of Jambu dvipa : this is the Nagara-khanda. Seventy of so many inscriptions, of which Bandanikke (Bandalike in Shimoga) seems to have been the chief town. And finally, a record to be noticed below says that the daughters of the Kadamba king were given in marriage to the Guptas.

— *Annual Report Of Mysore 1886 To 1903*

Jain cosmology is the description of the shape and functioning of the Universe (*loka*) and its constituents (such as living beings, matter, space, time etc.) according to Jainism. Jain cosmology considers the universe as an uncreated entity that has existed since infinity with neither beginning nor end.^[1] Jain texts describe the shape of the universe as similar to a man standing with legs apart and arm resting on his waist. This Universe, according to Jainism, is broad at the top, narrow at the middle and once again becomes broad at the bottom.^[2]

Dravya (Jainism)

According to Jains, the Universe is made up of six simple and eternal substances called *dravya* which are broadly categorized under Jiva (Living Substances) and Ajiva (Non Living Substances) as follows:

Jīva (Living Substances)

- Jīva i.e. Souls – *Jīva* exists as a reality, having a separate existence from the body that houses it. It is characterised by *chetana* (consciousness) and *upayoga* (knowledge and perception).^[3] Though the soul experiences both birth and death, it is neither really destroyed nor created. Decay and origin refer respectively to the disappearing of one state of soul and

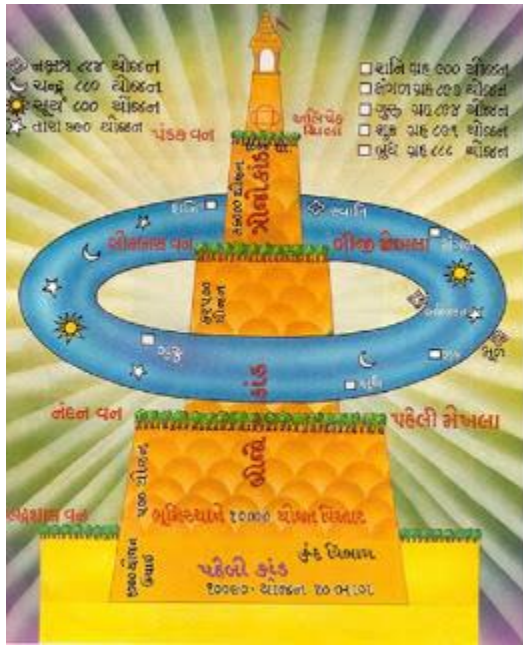
appearing of another state, these being merely the modes of the soul. Jiva are classified on bases of sense, so there are of 5 types: 1) with one sense (sparshendriya) 2) 2 senses (1st included and raasendriya) 3) 3 senses (1st 2 included and dharnendriya) 4) 4 senses (1st 3 included and chksuendriya) 5) 5 senses (1st 4 included and shrotendriya) ^[4]

Ajīva (Non-Living Substances)

- *Pudgala* (Matter) – Matter is classified as solid, liquid, gaseous, energy, fine Karmic materials and extra-fine matter i.e. ultimate particles. *Paramāṇu* or ultimate particle is the basic building block of all matter. The *Paramāṇu* and *Pudgala* are permanent and indestructible. Matter combines and changes its modes but its basic qualities remain the same. According to Jainism, it cannot be created, nor destroyed.
- *Dharmastikaay* or *Dharma-dravya* (Principle of Motion) and *Adharmastikaay* or *Adharma-dravya* (Principle of Rest) – *Dharmastikāya* and *Adharmastikāya* are distinctly peculiar to Jaina system of thought depicting the principle of Motion and Rest. They are said to pervade the entire universe. *Dharmastikaay* and *Adharmastikaay* are by itself not motion or rest but mediate motion and rest in other bodies. Without *Dharmastikāya* motion is not possible and without *Adharmastikāya* rest is not possible in the universe.
- *Ākāśa* (Space) – Space is a substance that accommodates the living souls, the matter, the principle of motion, the principle of rest and time. It is all-pervading, infinite and made of infinite space-points.
- *Kāla* (Time) – *Kāla* is an eternal substance according to Jainism and all activities, changes or modifications can be achieved only through the progress of time. According to the Jain text, *Dravyasaṃgraha*:

Conventional time (*vyavahāra kāla*) is perceived by the senses through the transformations and modifications of substances. Real time (*nīścaya kāla*), however, is the cause of imperceptible, minute changes (called *vartanā*) that go on incessantly in all substances.

— *Dravyasaṃgraha* (21



Six Dravyas

According to Jainism this universe is composed of six fundamental verities; the Jain word for the universe is "Loka" The co-existence of these six substances is called "Loka".

There are five Astikayas. (massed verities) among these six fundamental verities. Jiva, Padgala, Dharma, Adharma Akasa and Kala - these are the six fundamental verities. Except Kala, the five are Astikayas. These five Astikayas can be grouped under one name Ajiva.

The Jiva dravya has 563 divisions, while the Ajiva dravya has 560 divisions. Jiva and Ajiva are included in the nine tattvas and the six dravyas.

The universe is made of Jiva and Ajiva. There are only two tattvas in the universe : (1) Sentient (2) Non-sentient. Jiva is sentient, with a soul while Ajiva is non-sentient, without a soul.

There are detailed and lucid discussions on the nature of Jiva and Ajiva in Jain literature. Ajiva dravya plays a crucial role in the construction and management of the universe. A short discussion follows :

Ajivatattva is not an agent nor an enjoyer nor a sufferer and it has no soul sentience or Jiva. Like Jiva, the Ajiva tattva is beginningless, endless and eternal. There are two main types of Ajiva - (1) formless and (2) with a form. Dharma, Adharma, Akasa and Kala are formless, while Pudgala has a form.

Except Kala, the other five dravyas are called Astikayas. Astikaya means having a group of Pradeshes. The constituent units every fundamental verity is called a Pradesha. The Kaya (mass) of Pradeshas is Astikaya

"Astikaya is Pradesatmaka, i.e. occupies space; hence it is called an 'expanded entity'. Kala is not so called because it has astiva (existence) but not Kayatva (expansion in space)".

Dr. S.K. Belvelkar - Brahma - Sutrabhasya 2-2-33



Dharmastikaya and Adharmastikaya

The words - Dharma and Adharma are used here in a technical, special sense. They are not used here in the traditional sense of good conduct and bad conduct. The peculiar meaning of these two words in Jain religion is an original contribution of Jainism to the world.

The famous scientist Newton was the first to accept the Principle of motion. A fruit falls down from a higher level. Words flow from a flute. There is some medium through which a substance passes. Scientists give the name 'ether' to this medium. But Bhagavan Mahavira said 2500 years ago that all moving psychical states are only the subtlest vibrations. All these become active through the help of 'dharma'.

We are able to move through dharmastikaya; birds can fly and fish can swim. Thus, that which helps motion is 'Dharma'. It is a mass of pradeshas; hence it is called dharmastikaya.

Dharma helps motion, while adharma helps inertia.

The support of Jiva or Ajiva, which remains steady is a tattva which helps inertia. It is called Adharmastikaya. It helps in keeping one steady.

Whatever is moving or steady in this world is due to these two astikayas. Only Jainism uses these two words - Dharma and Adharma, in this peculiar sense.



Akasastikaya

Akasa (space) means the place where Jiva and Ajiva are accommodated. It is formless and supportless. All these six dravyas are accommodated by it.

Akasastikaya is the receptacle of all motion and inertia, Kala and Pudgalas - directions and intermediate directions are its imaginary divisions. Pervasion is its property.

There are 2 types of Akasa. Lokakasa and Alokakasa. That area is called Lokakasa where Dharma and Adharma, the two helping entities in motion and inertia, reach; while infinite space, where there is no Jiva or Ajiva is called Alokakasa.



Pudgalastikaya

Only Jainism has discussed, in detail, the nature of Pudgala. The word ‘physical element’ is current, while Jainism calls it ‘Pudgala’. The word Paramanu (atom) has become current nowadays in science and technology. There is a well-known theory of ‘atomism’. Jainism has discussed, the paramanu for the first time. Pudgaladravya is divisible in small, big, minute and coarse pieces. Jiva, Dharma, Adharma, and Akasa are non-divisible. There are no conjunctions and disjunctions in them. Pudgala is not an impartite substance. It comes into existence, it is destroyed. Permanent and regular change is its nature.

The smallest and minutest form of a Pudgala is a Paramanu. The Padgala, which cannot be cut, pierced, grasped, burnt and divided is a Paramanu.

Eight types of touch, five types of taste, two types of smell, five types of colour - these twenty are the qualities of a Pudgala.

Four types of Pudgala :

- (1) Skandha - The impartite portion of a Paramanu
- (2) Desa - Imaginary portion of a skandha
- (3) Pradesa - an indivisible part, jointed with the skandha
- (4) Parmanu - the minutest part, separate from a skandha.

There are 8 types of a Parmanu.

When a parmanu is changed into a skandha, it has ten forms such as word, sunshine, shade, light etc.

Jain religion has, for the first time, called Shabda (word) a Pudgala and discussed it deeply and fully. It has for the first time said that a word moves quickly, pervades the world, and remains steady in the world. The concrete form of this thinking by Jainism is seen today in messages through telegrams, phones, the radio, the T.V. etc.



Kala (Time)



The word 'Time' explained in simple and easy way, is Kala, but this is only one type. There are 4 types of Kala.

- 1. Pramana Kala** - An object is measured through kala hence it is called pramana kala.
- 2. Yathayu nivrtti kala** - life and death are relative. The various stages of life are therefore called yathayu nivrtti kala.
- 3. Marana kala** - The end of life is called marana kala.
- 4. Adda kala** - The kala connected with the motion of the sun and the moon is called Adda Kala. Adda Kala is the most important division. The other three are its special forms. Adda Kala is used in practice and it is used in the human world. For example, day-night, past tense, present tense, future tense, etc.

The minutest part of kala is called 'Samaya'.

The calculation of time in Jainism is typical and distinct. It is as follows :

- * Indivisible kala - one samaya
- * Innumerable samayas - one avalika

- * 256 Availikas - one ksullaka dhava
- * 2223-1229/3773 avalikas - one breath
- * One breath - one prana
- * 7 prans - one lava
- * 38 1/2 lavas - one ghadi (24 minutes)
- * 77 lavas - one muhurta (48 minutes)
- * 30 muhurtas - one whole day
- * 15 days - one fortnight
- * 2 fortnights - one month
- * 2 months - one season
- * 3 seasons - one half of the year
- * 2 halves of the year (ayanas) - one year
- * 5 years - one yuga
- * 70 Krodakroda 56 lakh kroda years - one purva
- * Innumerable purvas - one palyopama
- * 10 krodakroda palyopamas - one sagaropama
- * 20 krodakroda sagaropamas - one kalacakra
- * Infinite number of kalacakras - one pudgala paravartana

The briefest form of all these varieties of kala - today, yesterday and tomorrow.

Literature - Read 'Navatattva,' 'Tattvayathasutra,' and 'Padarthasangraha,' etc.

Eternity: The Jain doctrine postulates an eternal and ever-existing world which works on universal natural laws. The existence of a creator deity is overwhelmingly opposed in the Jain doctrine. *Mahāpurāṇa*, a Jain text authored by *Ācārya Jinasena* is famous for this quote:

Some foolish men declare that a creator made the world. The doctrine that the world was created is ill advised and should be rejected. If God created the world, where was he before the creation? If you say he was transcendent then and needed no support, where is he now? How could God have made this world without any raw material? If you say that he made this first, and then the world, you are faced with an endless regression.

According to Jains, the universe has a firm and an unalterable shape, which is measured in the Jain texts by means of a unit called *Rajlok*, which is supposed to be very large. The Digambara sect of Jainism postulates that the universe is fourteen *Rajloks* high and extends

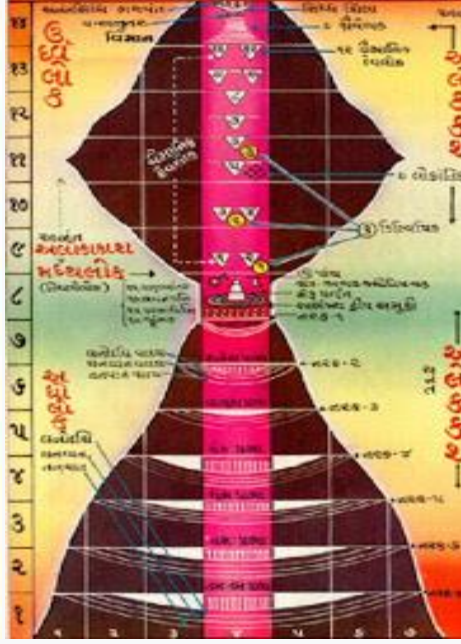
seven *Rajloks* from north to south. Its breadth is seven *Rajloks* long at the bottom and decreases gradually towards the middle, where it is one *Rajlok long*. The width then increases gradually until it is five *Rajloks* long and again decreases until it is one *Rajlok long*. The apex of the universe is one *Rajlok* long, one *Rajlok* wide and eight *Rajloks* high. The total space of the world is thus 343 cubic *Rajloks*. The Svetambara view differs slightly and postulates that there is a constant increase and decrease in the breadth, and the space is 239 cubic *Rajlok*. Apart from the apex, which is the abode of liberated beings, the universe is divided into three parts. The world is surrounded by three atmospheres: dense-water, dense-wind and thin-wind. It is then surrounded by an infinitely large non-world which is completely empty.

The whole world is said to be filled with living beings. In all three parts, there is the existence of very small living beings called nigoda. Nigoda are of two types: nitya-nigoda and Itara-nigoda. Nitya-nigoda are those which will reincarnate as nigoda throughout eternity, where as Itara-nigoda will be reborn as other beings. The mobile region of universe (Trasnaadi) is one *Rajlok* wide, one *Rajlok* broad and fourteen *Rajloks* high. Within this region, there are animals and plants everywhere, where as Human beings are restricted to 2 continents of the middle world. The beings inhabiting the lower world are called Narak (Hellish beings). The Deva (roughly demi-gods) live in the whole of the top and middle worlds, and top three realms of the lower world. Living beings are divided in fourteen classes (Jivasthana) : Fine beings with one sense, crude beings with one sense, beings with two senses, beings with three senses, beings with four senses, beings with five senses and no mind, and beings with five senses and a mind. These can be under-developed or developed, a total of 14. Human beings can get any form of existence, and are the only ones which can attain salvation.

Three lokas

Fourteen *Rajlok* or Triloka. Shape of Universe as per Jain cosmology in form of a cosmic man. Miniature from 17th century, *Samgrahaṇīratna* by Śrīcandra, in Prakrit with a Gujarati commentary. Jain Śvetāmbara cosmological text with commentary and illustrations.

The early Jains contemplated the nature of the earth and universe. They developed a detailed hypothesis on the various aspects of astronomy and cosmology. According to the Jain texts, the universe is divided into 3 parts:



- *Urdhva Loka* – the realms of the gods or heavens
- *Madhya Loka* – the realms of the humans, animals and plants
- *Adho Loka* – the realms of the hellish beings or the infernal regions

The following Upanga āgamas describe the Jain cosmology and geography in a great detail:^[6]

1. *Sūryaprajñapti* – Treatise on Sun
2. *Jambūdīvīpaprajñapti* – Treatise on the island of Roseapple tree; it contains a description of Jambūdīvī and life biographies of *Ṛṣabha* and King Bharata
3. *Candraprajñapti* – Treatise on moon

Additionally, the following texts describe the Jain cosmology and related topics in detail:

1. *Trilokasāra* – Essence of the three worlds (heavens, middle level, hells)
2. *Trilokaprajñapti* – Treatise on the three worlds
3. *Trilokadīpikā* – Illumination of the three worlds
4. *Tattvārthasūtra* – Description on nature of realities
5. *Kṣetrasamasa* – Summary of Jain geography
6. *Bruhatsamgrahni* – Treatise on Jain cosmology and geography

Urdhva Loka, the upper world

Upper World (Udharva loka) is divided into different abodes and are the realms of the heavenly beings (demi-gods) who are non-liberated souls.

Upper World is divided into sixteen Devalokas, nine Graiveyaka, nine Anudish and five Anuttar abodes. Sixteen Devaloka abodes are Saudharma, Aishana, Sanatkumara, Mahendra, Brahma, Brahmottara, Lantava, Kapishta, Shukra, Mahashukra, Shatara, Sahasrara, Anata, Pranata, Arana and Achyuta. Nine Graiveyak abodes are Sudarshan, Amogh, Suprabuddha, Yashodhar, Subhadra, Suvishal, Sumanas, Saumanas and Pritikar. Nine Anudish are Aditya, Archi, Archimalini, Vair, Vairochan, Saum, Saumrup, Ark and Sphatik. Five Anuttar are Vijaya, Vaijayanta, Jayanta, Aparajita and Sarvarthasiddhi.

The sixteen heavens in Devalokas are also called Kalpas and the rest are called Kalpatit. Those living in Kalpatit are called Ahamindra and are equal in grandeur. There is increase with regard to the lifetime, influence of power, happiness, lumination of body, purity in thought-colouration, capacity of the senses and range of clairvoyance in the Heavenly beings residing in the higher abodes. But there is decrease with regard to motion, stature, attachment and pride. The higher groups, dwelling in 9 Greveyak and 5 Anutar Viman. They are independent and dwelling in their own vehicles. The anuttara souls attain liberation within one or two lifetimes. The lower groups, organized like earthly kingdoms—rulers (Indra), counselors, guards, queens, followers, armies etc.

Above the Anutar vimans, at the apex of the universe is the realm of the liberated souls, the perfected omniscient and blissful beings, who are venerated by the Jains.^[7]

Madhya Loka, the middle world



Image depicting map of Jambudvīpa as per Jain Cosmology/Early 19th-century painting depicting map of 2 ½ continents/Depiction of Mount Meru at Jambudweep, Hastinapur

Madhya Loka consists of 900 yojans above and 900 yojans below earth surface. It is inhabited by

1. *Jyotishka devas* (luminous gods) – 790 to 900 yojans above earth
2. Humans,^[8] Tiryanach (Animals, birds, plants) on the surface
3. *Vyantar devas* (Intermediary gods) – 100 yojan below the ground level

Madhyaloka consists of many continent-islands surrounded by oceans, first eight whose names are:



Work of Art showing maps and diagrams as per Jain Cosmography from 17th century CE Manuscript of 12th century Jain text *Sankhitta Sangheyan*

Continent/ Island	Ocean
<i>Jambūdīvīpa</i>	<i>Lavanoda (Salt – ocean)</i>
<i>Ghatki Khand</i>	<i>Kaloda (Black sea)</i>

<i>Puskarvardvīpa</i>	<i>Puskaroda (Lotus Ocean)</i>
<i>Varunvardvīpa</i>	<i>Varunoda (Varun Ocean)</i>
<i>Kshirvardvīpa</i>	<i>Kshiroda (Ocean of milk)</i>
<i>Ghrutvardvīpa</i>	<i>Ghrutoda (Butter milk ocean)</i>
<i>Ikshuwardvīpa</i>	<i>Iksuvaroda (Sugar Ocean)</i>
<i>Nandishwardvīpa</i>	<i>Nandishwaroda</i>

Mount Meru (also *Sumeru*) is at the centre of the world surrounded by Jambūdvīpa in form of a circle forming a diameter of 100,000 yojans.^[7] There are two sets of sun, moon and stars revolving around Mount Meru; while one set works, the other set rests behind the Mount Meru.

Jambūdvīpa continent has 6 mighty mountains, dividing the continent into 7 zones (Ksetra). The names of these zones are:

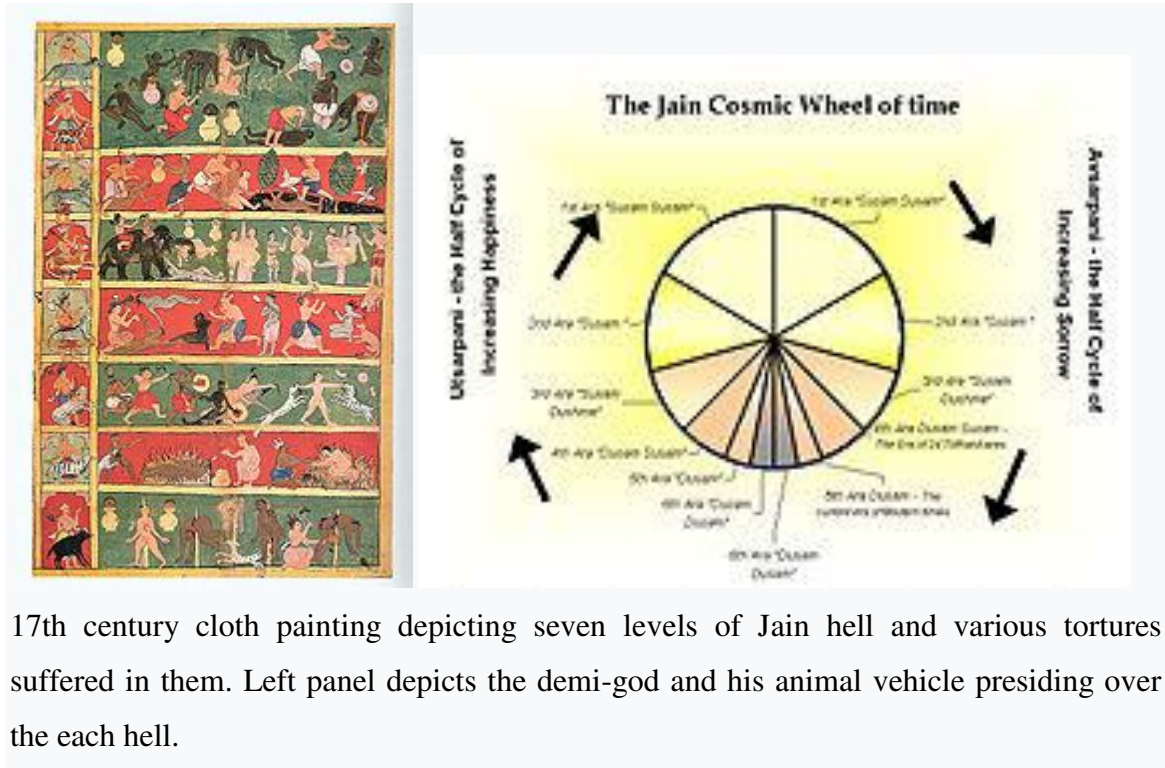
1. Bharat Kshetra
2. Mahavideh Kshetra
3. Airavat Kshetra
4. Ramyak Kshetra
5. Hiranya vant Kshetra
6. Hemvant Kshetra
7. Hari Varsh Kshetra

The three zones i.e. Bharat Kshetra, Mahavideh Kshetra and Airavat Kshetra are also known as Karma bhoomi because practice of austerities and liberation is possible and the

Tirthankaras preach the Jain doctrine. The other four zones, Ramyak, Hairanyvat Kshetra, Haimava Kshetra and Hari Kshetra are known as akarmabhoomi or bhogbhumi as humans live a sinless life of pleasure and no religion or liberation is possible.

Nandishvara Dvipa is not the edge of cosmos, but it is beyond the reach of humans.^[8] Humans can reside only on *Jambudvipa*, *Dhatatikhandha Dvipa*, and the inner half of *Pushkara Dvipa*.

Adho Loka, the lower world



17th century cloth painting depicting seven levels of Jain hell and various tortures suffered in them. Left panel depicts the demi-god and his animal vehicle presiding over the each hell.

The lower world consists of seven hells, which are inhabited by Bhavanapati demigods and the hellish beings. Hellish beings reside in the following hells:

1. Ratna prabha-dharma.
2. Sharkara prabha-vansha.
3. Valuka prabha-megha.
4. Pank prabha-anjana.
5. Dhum prabha-arista.
6. Tamah prabha-maghavi.

7. Mahatamah prabha-maadhavi

Division of time as envisaged by Jains-*Avasarpiṇī*

According to Jainism, time is beginningless and eternal. The *Kālacakra*, the cosmic wheel of time, rotates ceaselessly. The wheel of time is divided into two half-rotations, *Utsarpiṇī* or ascending time cycle and *Avasarpiṇī*, the descending time cycle, occurring continuously after each other. *Utsarpiṇī* is a period of progressive prosperity and happiness where the time spans and ages are at an increasing scale, while *Avasarpiṇī* is a period of increasing sorrow and immorality with decline in timespans of the epochs. Each of this half time cycle consisting of innumerable period of time (measured in *sagaropama* and *palyopama* years) is further sub-divided into six *aras* or epochs of unequal periods. Currently, the time cycle is in *avasarpiṇī* or descending phase with the following epochs.

Name of the Ara	Degree of happiness	Duration of Ara	Maximum height of people	Maximum lifespan of people
<i>Suṣama-suṣamā</i>	Utmost happiness and no sorrow	400 trillion <i>sāgaropamas</i>	Six miles tall	Three Palyopam years
<i>Suṣamā</i>	Moderate happiness and no sorrow	300 trillion <i>sāgaropamas</i>	Four miles tall	Two Palyopam Years
<i>Suṣama-duḥṣamā</i>	Happiness with very little sorrow	200 trillion <i>sāgaropamas</i>	Two miles tall	One Palyopam Years
<i>Duḥṣama-suṣamā</i>	Happiness with little sorrow	100 trillion <i>sāgaropamas</i>	1500 meters	84 Lakh Purva
<i>Duḥṣamā</i>	Sorrow with very little happiness	21,000 years	7 hatha	120 years
<i>Duḥṣama-</i>	Extreme sorrow and	21,000 years	1 hatha	20 years

<i>duḥṣamā</i>	misery			
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In *utsarpiṇī* the order of the eras is reversed. Starting from *duṣamā-duṣamā*, it ends with *suṣamā-suṣamā* and thus this never ending cycle continues. Each of these aras progress into the next phase seamlessly without any apocalyptic consequences. The increase or decrease in the happiness, life spans and length of people and general moral conduct of the society changes in a phased and graded manner as the time passes. No divine or supernatural beings are credited or responsible with these spontaneous temporal changes, either in a creative or overseeing role, rather human beings and creatures are born under the impulse of their own *karmas*.

Śalākāpuruṣas – The deeds of the 63 illustrious men

According to Jain texts, sixty-three illustrious beings, called *śalākāpuruṣas*, are born on this earth in every *Dukhama-sukhamā ara*. The Jain universal history is a compilation of the deeds of these illustrious persons. They comprise twenty-four *Tīrthaṅkaras*, twelve *chakravartins*, nine *balabhadra*, nine *narayana*, and nine *pratinarayana*.

A *chakravartī* is an emperor of the world and lord of the material realm.^[20] Though he possesses worldly power, he often finds his ambitions dwarfed by the vastness of the cosmos. Jain *puranas* give a list of twelve *chakravartins* (universal monarchs). They are golden in complexion. One of the *chakravartins* mentioned in Jain scriptures is Bharata Chakravartin. Jain texts like *Harivamsa Purana* and Hindu Texts like *Vishnu Purana* state that Indian subcontinent came to be known as *Bharata varsha* in his memory.

There are nine sets of *balabhadra*, *narayana*, and *pratinarayana*.

The *balabhadra* and *narayana* are brothers. *Balabhadra* are nonviolent heroes, *narayana* are violent heroes, and *pratinarayana* the villains. According to the legends, the *narayana* ultimately kill the *pratinarayana*. Of the nine *balabhadra*, eight attain liberation and the last goes to heaven. On death, the *narayana* go to hell because of their violent exploits, even if these were intended to uphold righteousness.

Jain cosmology divides the worldly cycle of time into two parts (*avasarpiṇī* and *utsarpiṇī*). According to Jain belief, in every half-cycle of time, twenty-four *tīrthaṅkaras* are born in the human realm to discover and teach the Jain doctrine appropriate for that era. The word *tīrthaṅkara* signifies the founder of a *tirtha*, which means a fordable passage across a sea. The *tīrthaṅkaras* show the 'fordable path' across the sea of interminable births and deaths. Rishabhanatha is said to be the first *tīrthaṅkara* of the present half-cycle (*avasarpiṇī*). Mahāvīra (6th century BC) is revered as the twenty

fourth *tīrthankara* of *avasarpinī*. Jain texts state that Jainism has always existed and will always exist.

During each motion of the half-cycle of the wheel of time, 63 *Śalākāpuruṣa* or 63 illustrious men, consisting of the 24 *Tīrthankaras* and their contemporaries regularly appear. The Jain universal or legendary history is basically a compilation of the deeds of these illustrious men. They are categorised as follows:

- 24 *Tīrthankaras* – The 24 *Tīrthankaras* or the supreme ford makers appear in succession to activate the true religion and establish the community of ascetics and laymen.
- 12 *Chakravartins* – The *Chakravartīs* are the universal monarchs who rule over the six continents.
- 9 *Balabhadras* who lead an ideal Jain life.e.g. Lord Rama ^[36]
- 9 *Narayana* or *Vasudev* (heroes)
- 9 *Prati-Naryana* or *Prati-Vasudev* (anti-heroes) – They are anti-heroes who are ultimately killed by the *Narayana*.

Balabhadra and *Narayana* are half brothers who jointly rule over three continents.

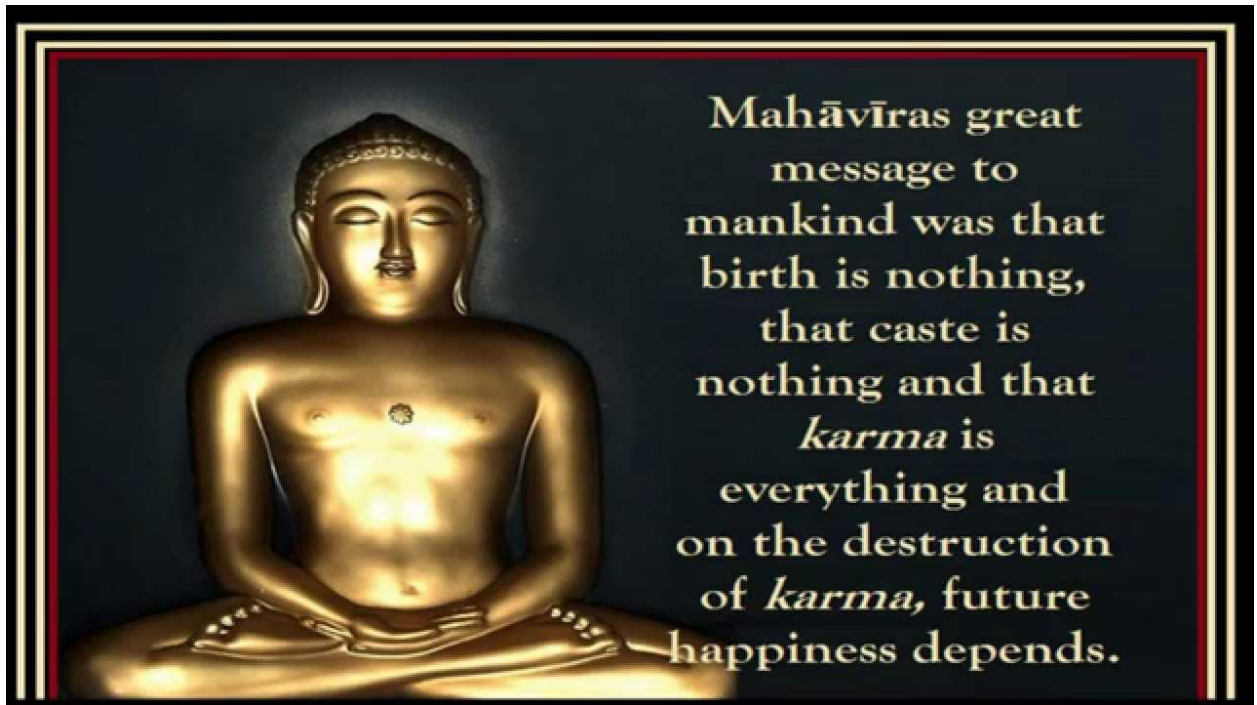
Besides these a few other important classes of 106 persons are recognized:-

9 *Naradas*
11 *Rudras*
24 *Kamdevas*
24 Fathers of the *Tirthankaras*.
24 Mothers of the *Tirthankaras*.
14 *Kulakara* (patriarchs)

Jambudweep was founded by Gyanmati Mataji in 1972 and the model of Jambudvipa was completed in 1985. For the tirtha, Nalini Balbir reported

The main attraction of this vast campus is the Jambudvipa. By its height, this original construction dominates all other buildings. It is meant both for education of the believers, since it shows them the Jaina representation of the universe, and for their entertainment. One can climb to the top by an inner staircase, or go boating around the Lavanasamudra.

— *Nalini Balbir*



Jambudweep depicts the model Jain cosmology has been designed here under the supervision of Shri Gyanmati Mataji was in 1985. The premises has various Jain temples which includes Sumeru Parvat, Lotus Temple, Teen Murti Mandir, Meditation Temple, Badi Murti, Teen Lok Rachna and many other tourist attractions.

Unique circular structures of Jain Geography 'Jambudweep' has been constructed with white & coloured marble stones in the diameter of 250 ft. with 101 ft. tall Mount Sumeru Parvat is built by light pink marble situated in the center of Jambudweep Rachna.

In the story about Jambudweep, Gyanmati Mataji had a vision in 1965 while meditating. In the vision, she saw the entire structure of universe. Discovering later that what she had seen perfectly matched the cosmographical details described in Jain scriptures, she decided to create a pilgrimage site with the aim of creating a model of Jambudvipa. "Jambudweep Trilok Sodh Sansthan" has been established at Jambudweep, Hastinapur to raise awareness regarding the Jain Mythology and Jain Philosophy. Jambudweep developed a website <http://www.jambudweep.org> in 2007 to spread the Jain philosophy online, with more than 2000 books uploaded.

The term 'Tirthankara' is a portmanteau which is a combination of two words as under:

1. 'Tiratha' which means a 'Ford - i.e. the portion of a river or a stream which is shallow, and thus could be used to cross over to the other side.
2. 'kara' which means 'maker'.

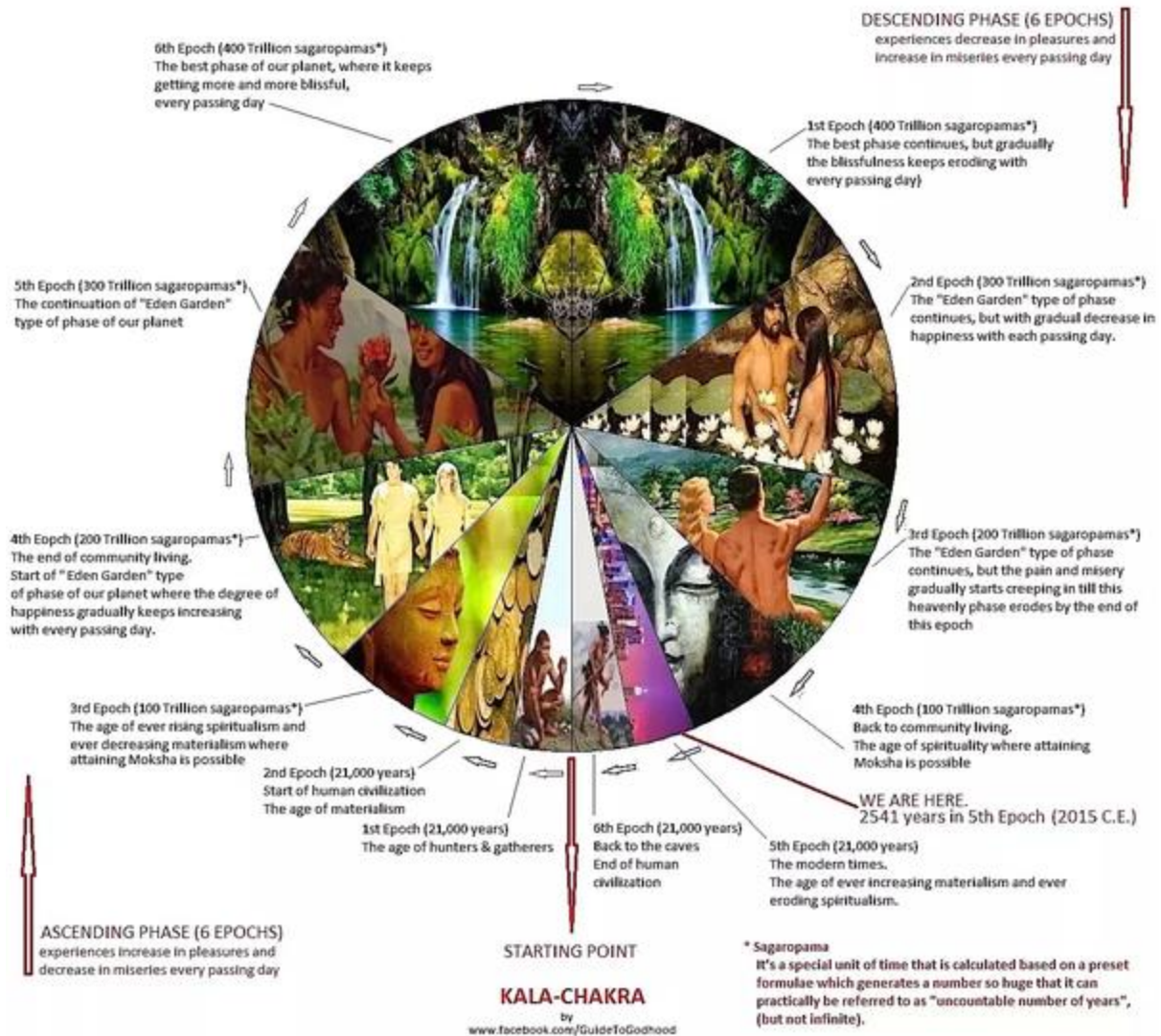
So collectively, the word Tirtha-n-kara means the maker of a ford that helps the seekers crossover the ocean called Samsara and reach Nibana.

Thus, Tirthhankara or the ford makers are the ones who having experienced ultimate knowledge (Keval-Gyan), creates a path (ford) following which humanity may crossover from the ocean called 'samsara'.

Tirthankara's significance can be further understood by the below salient features of the same:

1. There are just 48 of these illustrious souls per Kala-Chakra (the cyclic wheel of time), 24 each in its increasing and decreasing phase on our planet. However, it does not mean that there are just 48 per Kala-chakra across the universe as other planets, and other parallel universes have more of these illustrious souls. As per Jain annals, one such soul, the living Tirthankara currently present in a parallel universe called 'Maha-Vidhe-Kshetra' is Tirthankara Simandhar Swami - Wikipedia. He is not one of the 48 Tirthankara that our planet had experienced, but still a Tirthankara equally revered by Jains.
2. A Church gets created around a Tirthankara. Unlike prophets or masters, they do not go around asking people to join, declaring 'If you have ears, hear'. There is no canvassing of their religion on their part. Seekers gets attracted to them just the way iron gets attracted to a magnet, and thus the 'church' around them gets created on its own accord. This is one of the most significant features of a Tirthankara which distinguishes them from other masters or prophets of our planet.
3. Tirthankaras are different from other illustrious souls that experiences Keval-Gyan or ultimate knowledge by the fact that they are the only ones around whom the church gets 'automatically created'. Its on account of their exceptional good karma in past lives and is the fact that distinguishes them from other Arihanta's or other completely enlightened beings.

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- #Jambudweep
BhaktiBharat.com



Lotus Temple: It is a small temple in the courtyard of Jambudweep. It is a House of Worship, popularly known as the Lotus Temple, is a Jain House of Worship and also a prominent attraction in Hastinapur. It was completed in 1989.



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CHAPTER XV

The concept of " Jambudeep" - In General

Jambudveepe Bharatha Varshe Bharata Khande

ABSTRACT

Jambudvīpa (Sanskrit: जम्बुद्वीप) is the dvīpa ("island" or "continent") of the terrestrial world, as envisioned in the cosmologies of Hinduism, Buddhism, and Jainism, which is the realm where ordinary human beings live.¹

The word Jambudvīpa literally refers to "the land of Jambu trees" where jambu (also known as jamun) is the Indian Blackberry (*Syzygium cumini*) and dvīpa has two meanings "island" or "continent" and "planets" situated in the ocean of outer space.

"The planets are called dvīpas. Outer space is like an ocean of air. Just as there are islands in the watery ocean, these planets in the ocean of space are called dvīpas, or islands in outer space" (Chaitanya Caritamrita Madhya 20.218, Purport)

Jambudveepe consisted of modern Asia, Europe, Africa and North America and not merely the Indian subcontinent. The credits for this discovery go to the great soul Lokamanya Balagangadhar Tilak in his book-The Arctic Home in the Vedas. See also my paper on Did the Hindu Gods Live in Scandinavia, on academia.edu

All of us would have probably heard the words, ".....Jambudveepe Bharatha Varshe Bharata Khande....." during the sankalpa mantram which forms an integral part of all Vedic rituals. What exactly is this "Jambudwipa"?

Jambudveepe consisted of modern Asia, Europe, Africa and North America and not merely the Indian subcontinent. The credits for this discovery go to the great soul Lokamanya Balagangadhar Tilak in his book-The Arctic Home in the Vedas. See also my paper on Did the Hindu Gods Live in Scandinavia, on academia.edu

This Jambudvīpa was divided into nine varshas (geographical regions) of which one was Bharatha Varsha. The other eight varshas were:

1. Ketumula Varsha
2. Hari Varsha
3. Ilavrita Varsha
4. Kuru Varsha
5. Hiranyaka Varsha

6.Ramyaka Varsha

7.Kimpurusha Varsha

8.Bhadrasva Varsha.

India which was then called Bharathavarsha extended in the west including the regions of modern Egypt, Afghanistan, Baluchistan, Iran, Sumeria upto Caspian Sea (which was called Kashyapa Samudra in those days). Within this Bharata Varsha was located the Bharata Khanda which was the heart of the Vedic civilization & the place where we Indians currently reside. This is one of the innumerable proofs that the Indo-Aryan race theory is a conspiracy theory moulded by western countries to show us in poor light. All of the regions so mentioned in the race theory are a part of Bharata Varsha & there was never a so called "invasion".

What is amazing is the fact that our ancestors had an excellent overview of the geography of the world back then.

It can be observed that in those times, most of South American continent, southern half of African Continent and entire Australia were submerged under water. On the other hand most of modern day Atlantic ocean and Pacific ocean, and the entire Arctic ocean were above sea level. Two words are used in this ancient shloks Khand which means a Continent and Varshe which could point to a nation.'

Description of Jambu-dweep: Ancient texts describe 9 divisions of *Jambu-dweep* with precise locations ascribed to each of them. Also, bang in the center of this global-landmass is an enormous mountain called Meru.

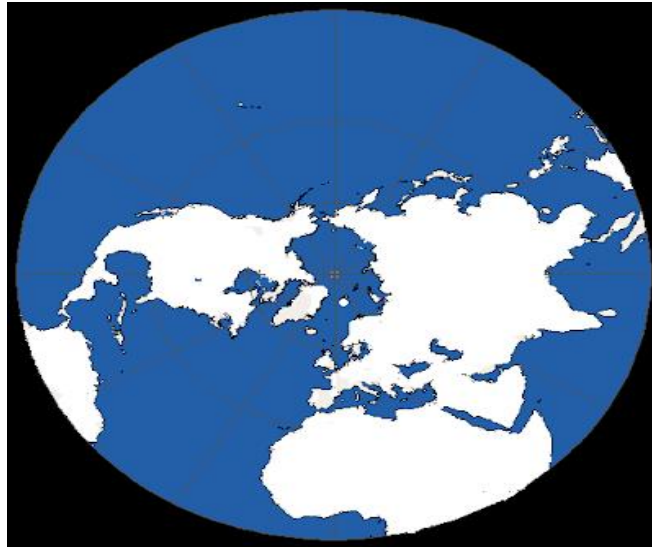
On the basis of the last TWO posts, there are at least TWO things we can definitely state:

1. One, BhArat Varsha refers to the Indian sub-continent;
2. Second, Mount Meru and therefore its containing continent Ilavrit Varsha, is situated around the North pole.

To me, the descriptions of *Jambudvipa* seem like a Polar projection i.e. a view of the Earth as seen from above the North Pole. We will therefore try to extrapolate the continents based on

these three reference points.

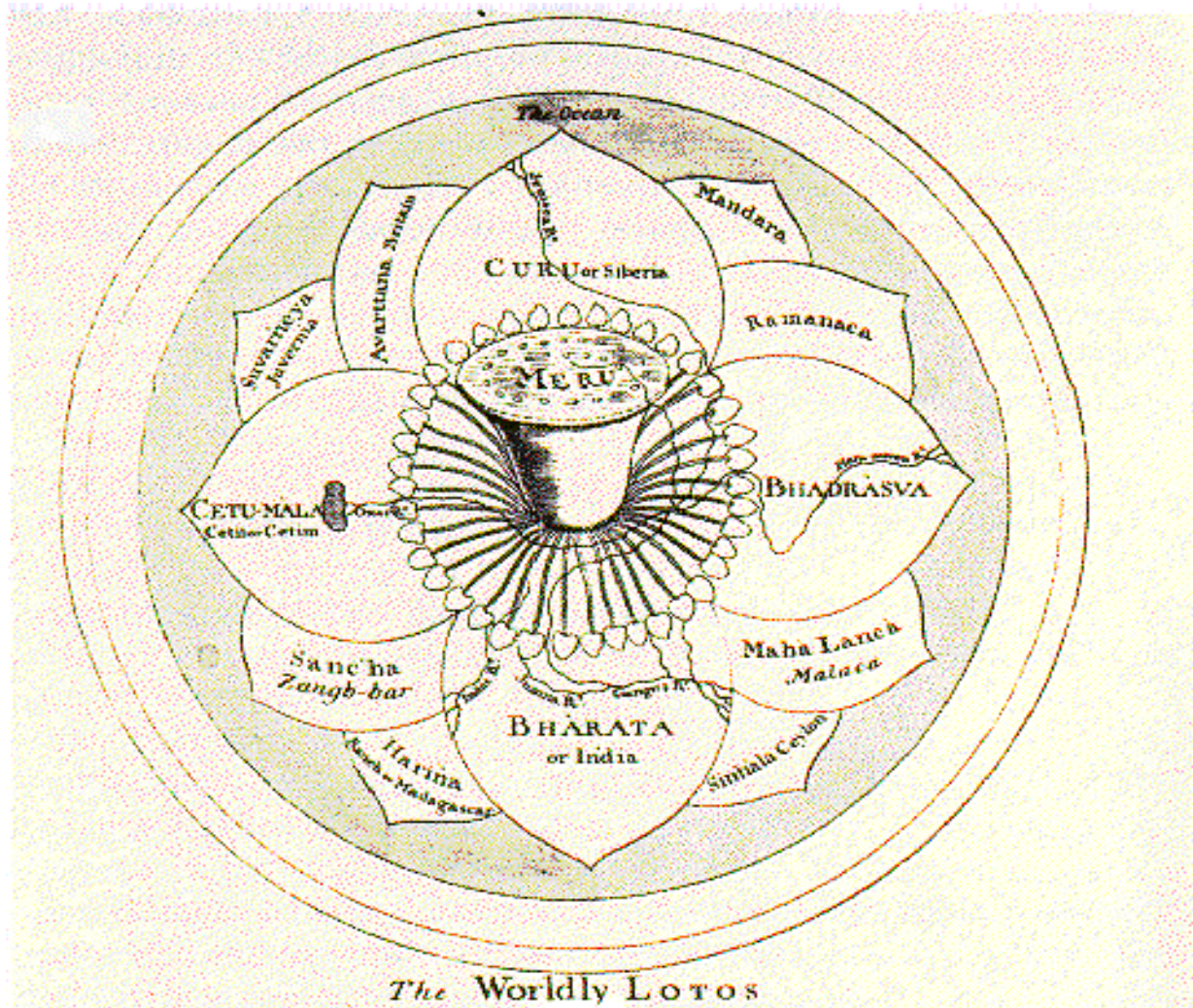
Polar Projection of the present landmass



Arrangement: Broadly, the four landmasses of Bharat, Ketumal, Bhadrashva and Kuru are placed in the four directions, like petals of a lotus flower around the central pericarp of Meru (and Ilavrit Varsha). Let's see how it appears diagrammatically. Central Meru with lotus like arrangement of continents. Going Southwards from Meru, we first come across Kimpurush-varsha followed by Hari-varsha and finally Bharat-varsha which is the southernmost continent. In the North, Ramyak is the first landmass followed by Hiranyamay and Uttarkuru divisions (As a corollary, we get *Kuru Varsha* on the exact opposite side of India when mapped on the globe). Towards the East is Bhadrashva which would today lie somewhere in the Pacific Ocean and towards the West is Ketumal which would probably be submerged under the Atlantic Ocean of today. The image below has been taken from Hitxp forum and maps these descriptions onto the current World Geography.

Sub-divisions of Jambudweep: We should understand that owing to different arrangement of continents, most of Southern America, Africa and Australia were either located very different to their current positions OR probably submerged under water! If this theory is correct, the reference to this Super-continent points to existence of an extremely ancient civilization that has retained the memories of a Global-Island or at the very least had the technical know-how to

find out this pre-historic description ages before modern science! Coming back to the mystery of Jambudvipa, most geologists claim that this is a cyclical process and in about 250 Million Years from now, all the continents would come together to form a super-continent called the Pangea .(see end of Chapter or paper). Just as the Jambu-dweep has split over the eons, so has the Human species and we are today divided into innumerable tribes, religions, races and nations. Whatever shape the landmasses take, Jambu Dweep will always mean an Island of *Jambu trees* (*Syzygium* fruit or Java Plum). The fruit is called as *Naval Pazlam* in Tamil and *nerale hannu* in Kannada.



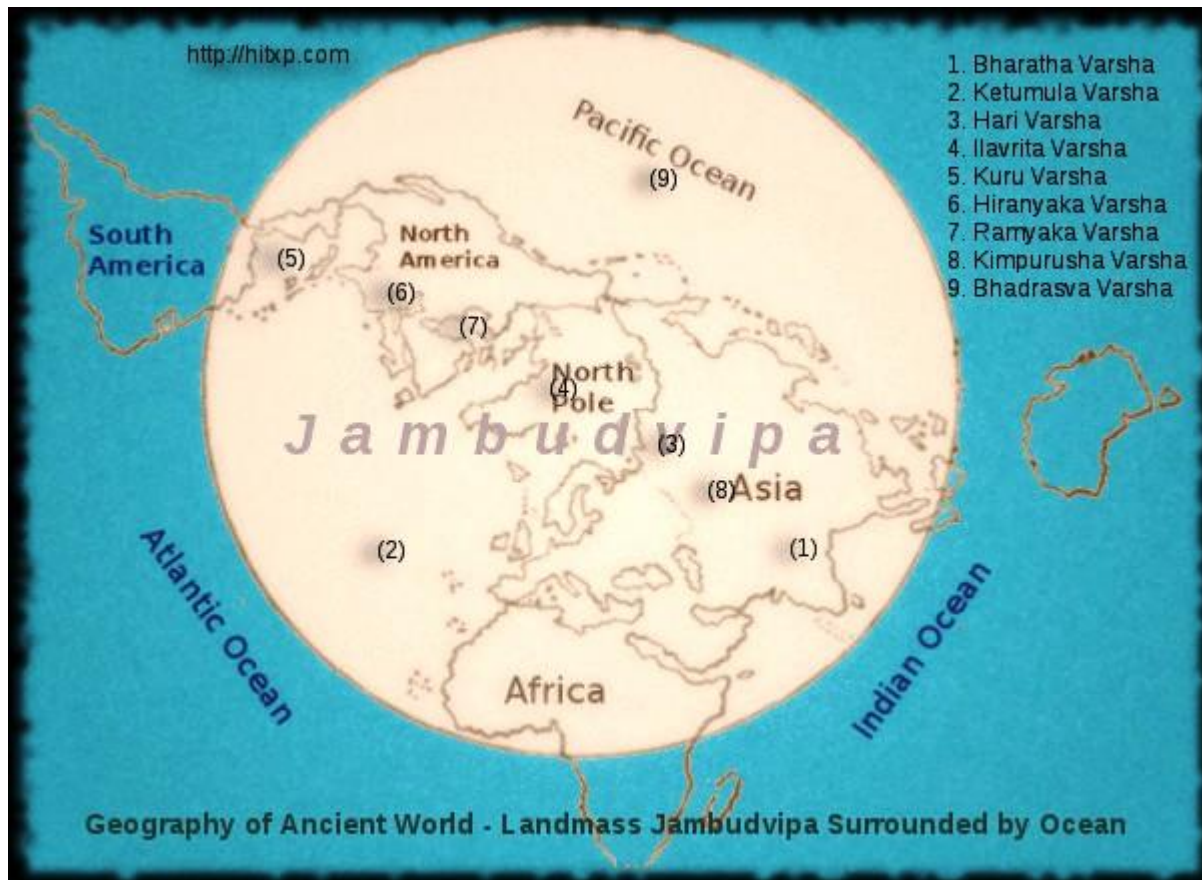


Image courtesy Hitxp Forum}

In Ancient times this Globe was partitioned into Saptha Dweepa (7 islands) namely.

- Jambu (Java Plum) (Asia, Eurasia)
- Plaksha (*Ficus religiosa* or sacred fig) (South America)
- Saalmalli (*Bombax ceiba*, cotton tree) (Australia)
- Kusha (Grass) (oceania)
- Krouncha (Africa)
- Saaka (Europe, Atlantis)
- Pushkara (North America, Canada)

In these Dvipas, Jambu Dweep had a importance as many of the important events like Ramayana, Mahabharat has taken place here.

- It is believed that there was a Humongous Jambu tree near *Meru Parvat*, the tree was so huge, so that if a Jambu fruit drops from that tree. the juice of that fruit will flow like a river.
- As this Jambu tree was the landmark of this Island, it was called as Jambu dweepa.

Jambu dvipa is further classified into Nava Varsha:

1. Bharat Kshetra (*Present India lies here*)
2. Mahavideha Kshetra
3. Airavat Kshetra

4. Ramyakwas Kshetra
5. Hariwat Kshetra
6. Hairanyvat Kshetra
7. Haimavat Kshetra
8. Devkuru Kshetra
9. Uttarkuru Kshetra

According to Puranic cosmography cosmography, the entire Cosmos is divided into seven concentric island continents (*sapta-dvipa vasumati*) separated by the seven encircling oceans, each double the size of the preceding one (going out from within). The seven continents of the Puranas are stated jambudvipa Plaksadvipa, Salmalidvipa, Kusadvipa, Krouncadvipa, Sakadvipa, and Pushkaradvipa. Jambudweep-The first Geographical Creation of God.

Hastinapur is the historical Pilgrimage centre, where histories of many great persons like Tirthankars etc. are connected. The first Jain Tirthankar Lord Rishabhdev had taken the first of his meals, that is the first Ahar of sugarcane juice here, crores of years back. After a long span of time, three Tirthankars were born here, as Lord Shantinath-the sixteenth Tirthankar, Lord Kunthunath-the seventeenth Tirthankar and Lord Arahath- the eighteenth Tirthankar. The world famous war of Mahabharat, the history of Rakshabandhan and a number of other histori. In ancient times, terrestrial part of earth is divided into 7 dweeps. Jambudeep is one of them which is the center of northern hemisphere. It is further divided into 9 varsha are : kuruvvarsha, ramyaka varsha, hiranyaka varsha in the north to it. Bhadrasha varsha in the east. Ketumala varsha in West and hari varsha, kimpurusha varsha and bharata varsha to south of it. Ila varsha is present in the center of jambudeep. Jambudeep is ruled by agnidhara who is the eldest son of priyavrata (son of manu). Bharat varsha is one of the varsha of jambudeep is ruled by son of agnidhara whose name is nabhi

Location: Jambudvipa is an island, 800,000 miles in breadth and length, divided into 9 Varshas or regions. Our known Earth area is on the southern coast of Jambudvipa and is 8,000 miles in diameter. It is one of 9 islands that make up Bharata Varsha. India is just one continent on the circle of Sudarshana Dvipa/Bharata Khanda (the name for our Earth circle). Formerly all of our known earth circle was called Bharata Varsha, but now it has been mainly used to denote the

According to Wikipedia, Jambudvīpa (Sanskrit: जम्बुद्वीप) is the dvīpa ("island" or "continent") of the terrestrial world, as envisioned in the cosmologies of Hinduism, Buddhism, and Jainism, which is the realm where ordinary human beings live.

The word Jambudvīpa literally refers to "the land of Jambu trees" where *Jambu* is the name of the species (also called Jambul or Indian Blackberry) and *dvīpa* means "island" or "continent". Kindly refer wikipedia for more clarification.

It is not India that was called Jambudweep, the whole tectonic plate of India was called Bharata Varsha. There were 9 Varshas on Jambudweep in ancient times. It comprises far more than present day India which is a residue of Bharatha Khanda (Bharatha's Piece of Arya Varsha (laws) under Bharatha Varsha, and located to the South of the Meru Mountain). The term Jambu Dweepa comes from Shroutha Smartha Itihasa and is a reference to what is referred to as "Gondwana Land" by Western theorists. Literal translations are 'island of jambu trees' (Indian Blackberry) and 'island with huge expansion'. Well, from ancient literature it seems, it was not just about present Indian territory or Indian subcontinent alone.

Carl Sagan the famous Physicist and Author says in his book the Earth - The Blue Planet..

*Home to every Hunter and Forager,
Every Hero and Coward,
Every Creator and Destroyer,
Every King and Peasant,
Every Inventor and Explorer,
Every Mother, Father and Child,
Every teacher of Morals,
Every Corrupt politician,
Every Superstar, Saint and Sinner,
Aggregate of our Joy and Suffering,
This tiny mote of dust,
Suspended in a sunbeam,
This is Home, This is Us!*

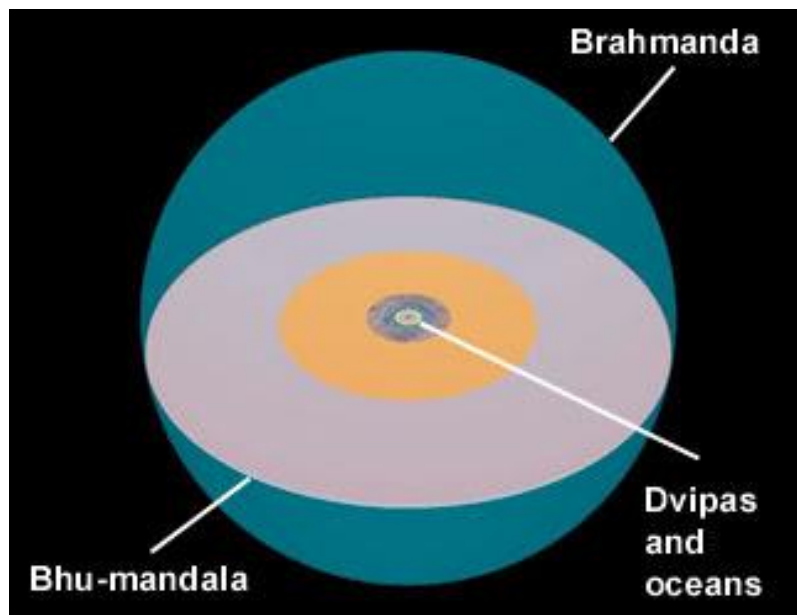
(Our Home - The Blue Planet)

Descriptions in Hindu, Buddhist and Jain texts repeatedly throw up this well-defined yet not-so-well-recognized term.

Different scholars consider it variously as either the 'Indian sub-continent' or the 'Asian continent'. However, as we shall see, none of them come even close to the TRUTH!! Let me share some of the important scriptural references here with you:

- Markandeya Puraan describes *Jambu-dvip* as being depressed above and below and broad in the middle just like a Globe.
- Srimad Bhagavatam points out that on *Jambu-dvipa*, night prevails diametrically opposite to a point where it is day and Sun sets at a point opposite to where it rises.
- Mahabharat describes the Universe as a series of shells divided in two by an earth plane called the *Bhu-mandala*; *Jambu-dwip* is the central landmark on this plane.
- Jain and Buddhist cosmologies indicate *Jambū-dweep* at the centre of *Madhyaloka* or the middle part of the universe, the place where Human-beings reside.
- And last but perhaps the most important for our current post, various assorted texts describe Bharat Varsha or India as just ONE of the NINE divisions of *Jambu-dweep*.

Jambu-dvipa in the center of Bhu-mandala & Madhyaloka



From the above descriptions, it would be clear that this landmass DOES NOT refer to India or even Asia.. The references in fact indicate Jambudvipa to be NOT a small portion of our planet, but the ENTIRE Planet itself!!

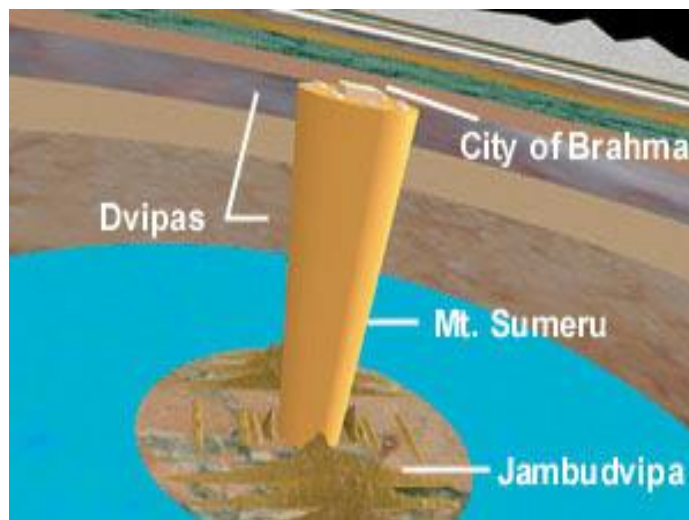
Jambudvipa in Jain Cosmology



Alongwith *Jambu-dweep*, the scriptures describe various other Islands which some scholars tend to confuse with the different islands of our planet and hence get flabbergasted. Sitting at the southernmost tip of the island of Lanka right now, I can understand this is definitely NOT the case.

The staggering dimensions of these so called 'Islands' should be indication enough to negate that possibility completely. Moreover, these *Dvipas* are located around the central landmass of Jambudvipa in a concentric fashion which suggests each of them revolving in circular orbits.

Arrangement of *Dvipas* in a circular fashion



- The Dvipas refer to the different planetary systems of the Madhya Loka that are inhabited by Humans and is perhaps the FIRST reference in World literature to Humanoid races inhabiting MORE than ONE planet!! This interpretation seems to me most likely, especially if the planets being talked about exist in Parallel dimensions.
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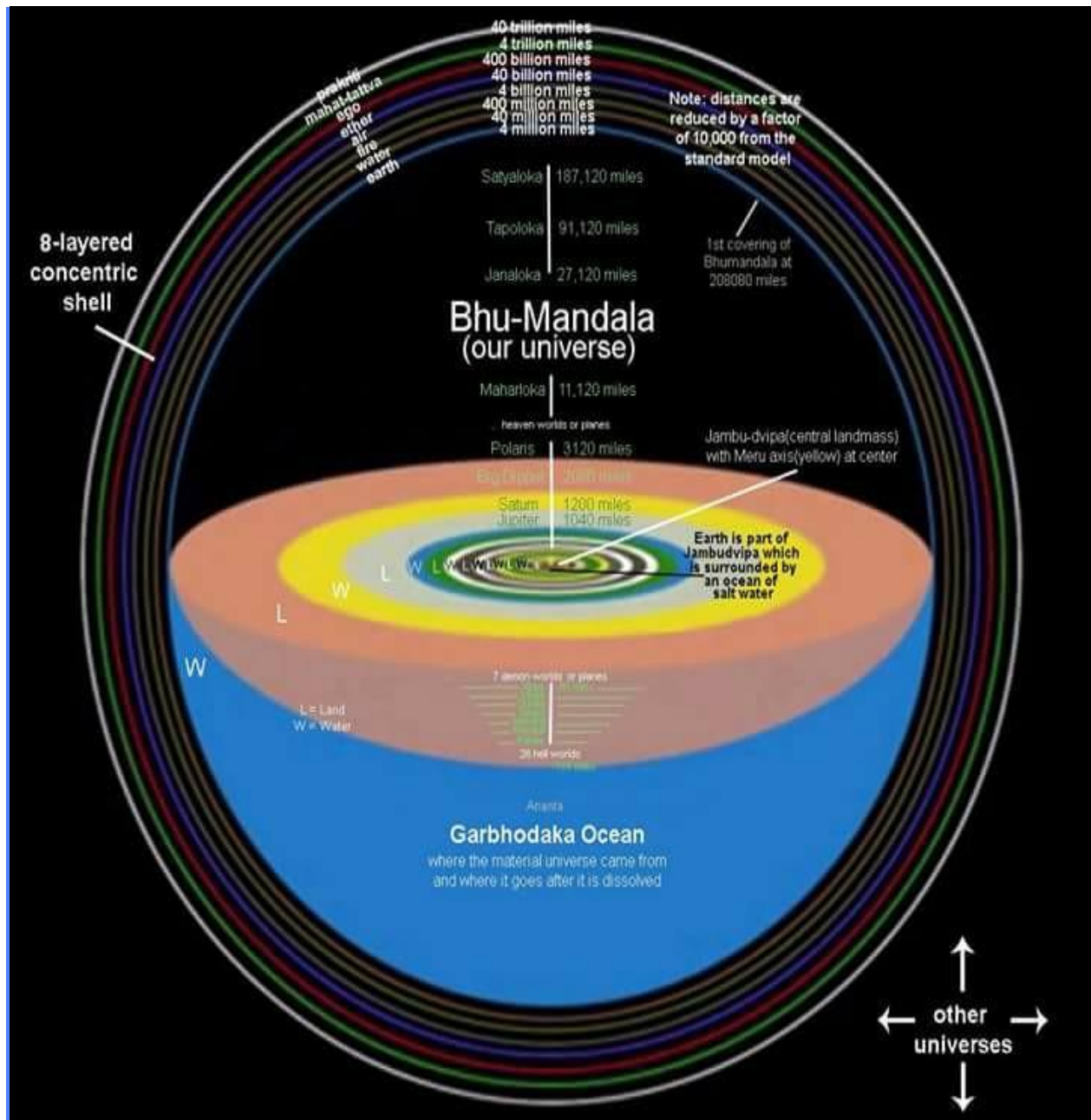
Because there is a general belief that this country was named "Bharatavarsha" in the name of Bharata, the great son of King Dushyant and his wife Shakuntala in a Mahabharata Kuru dynasty. But at the same time our Purana presents something different. Scientific theory believes that in ancient times, the terrain was divided into territories, that is, continents. But who and why and when these seven continents were created No one ever said anything about it.

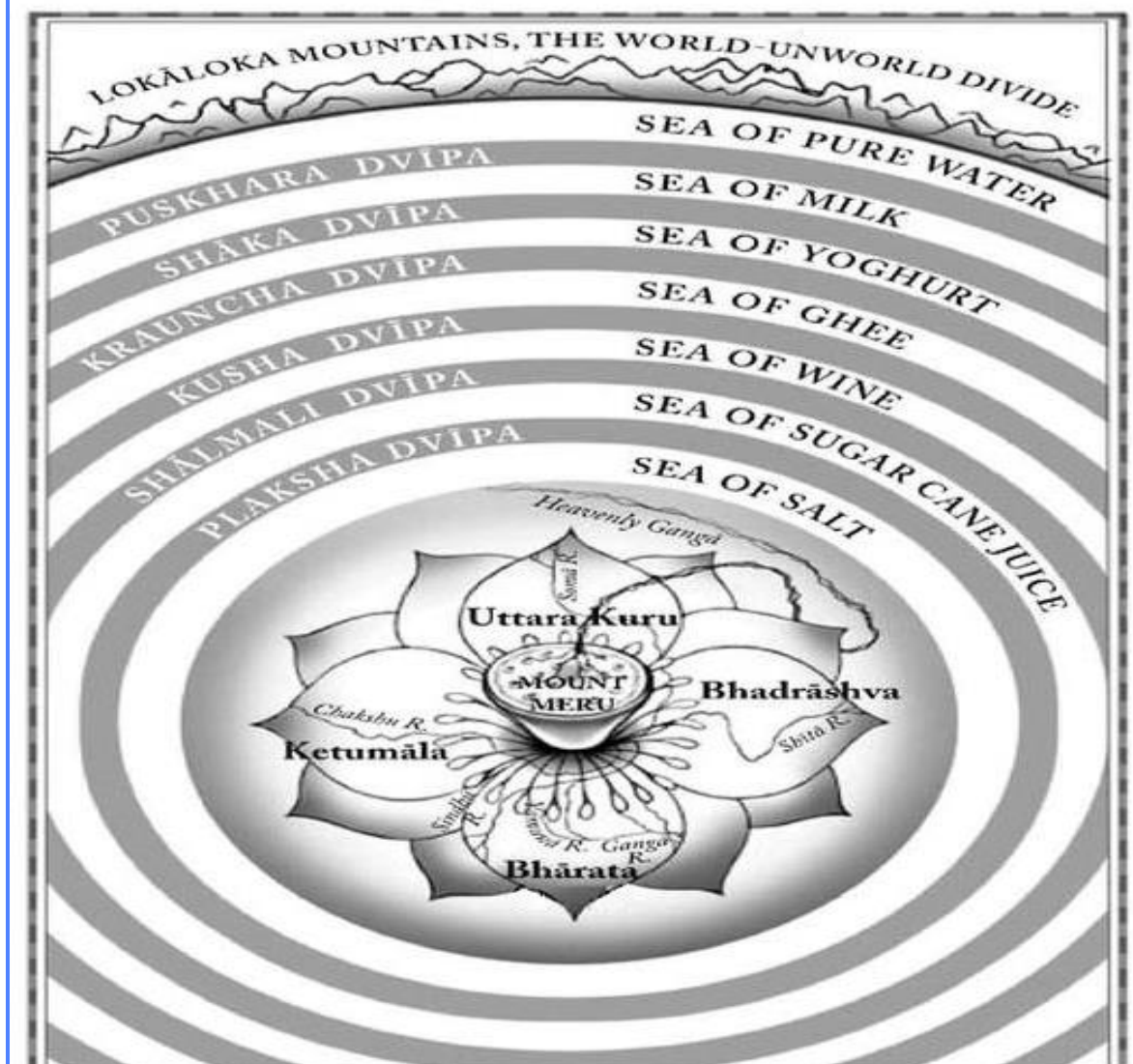
Or I can say in other words that the direction of research related to this was deliberately changed. But our "" Jambudeep Naam "" in itself tells the whole story which means the whole island.

That is perhaps the explanation as to why our ancient religious texts and various incarnations mention only "Jambudweep" because at that time there was only one island. At the same time, our Vayu Purana presents before us the whole thing related to it and its evidence.

According to the Vayu Purana, about 22 million years ago, in the beginning of the Treta Yuga, the grandson of Swayambhuva Manu and son of Priyabrata settled this Bharata Khanda. Since Maharaj Priyabrata had no son, he adopted his daughter's son Agnindhra, whose boy was Navel. The son born to Meru Devi, a wife of Navel, was named Rishabh and, the son of this same Rishabh was Bharata and after this Bharata, this country was named "Bharatavarsha". At that time, King Priyabrata appointed seven of the ten sons of his daughter as separate kings of the seven continents of the whole earth. The meaning of the king was taken from the religion at that time, and the founder of the just state. In this way King Priyavrat made Agnindhra the ruler of the island of Jambu. After this, King Bharat gave his kingdom to his son and, it is called

"Bharatvarsha".Keep in mind that Bharatvarsha means the territory of King Bharata and the name of the son of these king Bharata was Sumati





Vayu Purana says about this topic-

**Saptadwipikrantrantam Jambudeepam Nibodhat.
 Agnidhran Jyeshthadayam Kanyaputram Mahabalam.
 Priyavrato Abhyasinchantam Jambudvipeshwaram Nrupam.
 Tasya son Bbhavvurhi Prajapati Samaujas:
 Jyeshtho Nabhrithi Khyatastasya Kimpurusho anuj:
 Nāveh'ī Sargān Vakshyāmī Himāhvā Tannibodhat. (Air 31-37, 38)**

These words of resolution are worth noting because, in them, Jambudweep is used for present-day Eurasia. This Jambu island is located in the Bharat Khand i.e. the region of Bharat i.e. Bharathavarsha which is called Aryavrata. With the small mantra of this resolution, we explain

the glorious history of our glorious past. But now a big question arises that when the truth is like this then why is the name of this country associated with Shakuntala and Dushyant's son Bharata?

Instead of saying more in this regard, it would be appropriate to say that adding the case of the origin of the name of this country to Shakuntala, Bharat, son of Dushyanta, may be the result of similarity of names or, we Hindus in our religious texts This may have happened due to indifference. The creation of the universe, that one billion 96 crore eight lakh fifty three thousand one hundred thirteenth years are going on.

This verse of Vayu Purana is mentioned about our country -

**Himalayan Dakshinam Bharata Nyaydayayat. Tasmattadbharatam year Tasya Namna
Bidurbudha:.**

Here our Vayu Purana is clearly saying that the year of the south from Mountains of Himalayas means that India is India. That is why we should have no hesitation in saying that by combining the origin of the name of our country with Shakuntala and Dushyant's son Bharata, we have tried to cover our history in the span of five thousand years from the point of view of Western historians.

Jambudweep - the Global Island: On several occasions in the Puranas or Holy Hindu texts, entire landmass of *Jambu-dvipa* is described as a continuous stretch of land subdivided into different continents by means of various mountain ranges with each of these divisions being governed by the 9 sons of Emperor Agnidhra, the grandson of Adam/Manu. This, however, is clearly NOT the current state of affairs! The present landmasses on Earth are quite spread out and no where are they close to forming a global island. Besides, instead of Mountain ranges, it is the water bodies that separate them from each other. Even preliminary research on this topic shows, that there indeed was a time in the history of our planet when the ENTIRE land on Earth was joined to form a SINGLE landmass! In Geology, such an entity is called a Super-continent and quite suitably, the Scientists have labeled it as Pangea. (Shown below)



Super-continent Pangea

Could it be, that the scriptural reference of Jambudweep, actually originated in a time when the Entire Earth was ONE whole Continent and not broken up into different landmasses!?!

The descriptions in scriptures clearly define an island of gigantic proportions covering this entire globe and it is more than likely that they refer to one of the super-continents that have existed in our pre-history! *See panagea end of the Paper.*

Jambudvipa as a Super-continent : It is a scientifically documented fact that Earth's Crust floats on the hot, molten layer called Magma. The solid crust not only moves on top of the fluid layer but is also broken into separate pieces called Plates that move relative to each other. This movement is referred to as Plate-tectonics.

The Tectonic Plates

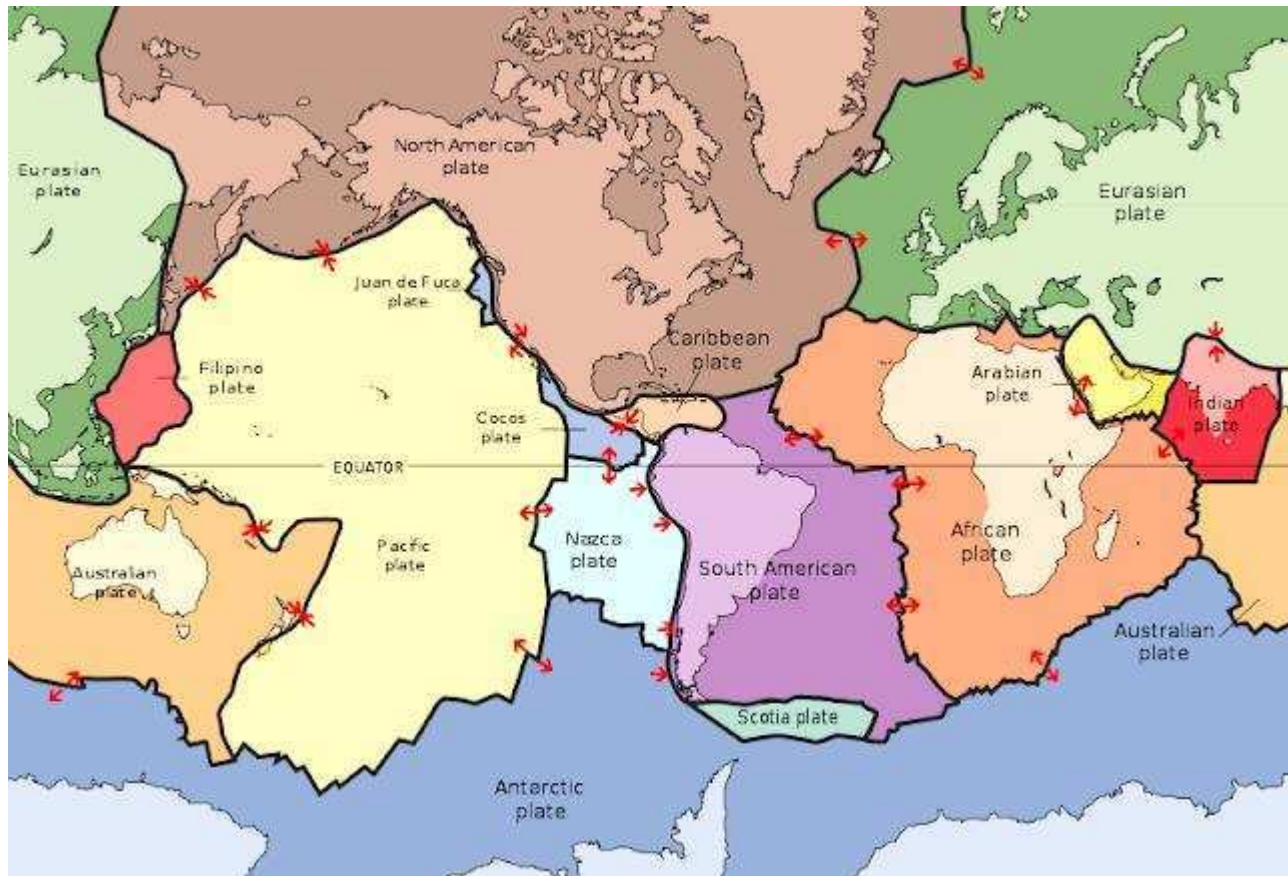
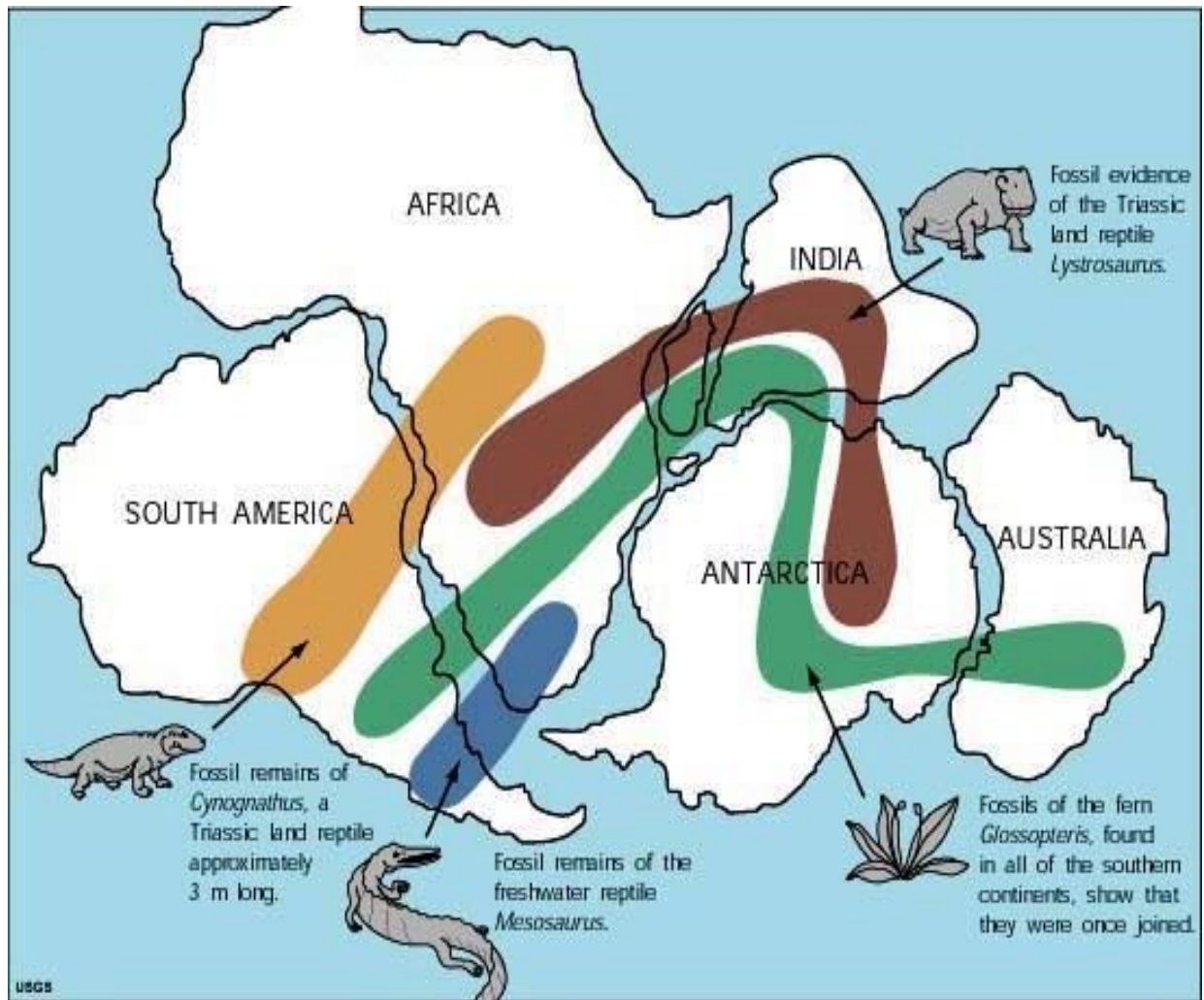


Plate-tectonics can be used to explain the formation of many geological features on our planet right from the highest mountain ranges of Himalayas (which came up when the *Indian* plate collided with the *Eurasian* plate) to the deepest ocean formations like the Mariana trench.

Scientists have observed that the different plates are in motion with respect to each other, and plotting their course in the past, they have realized that at some point of time, these plates were all stuck giving rise to our Super-continent!!



Observe changing positions with focus on the Indian plate

The presence of these super-continents has also been proved using Fossil studies which shows a remarkable similarity amongst the distribution of wild-life in the southern continents.

Fossil co-relation found in Present Continent: The movement of these Plates has resulted in formation and disintegration of Super-continent in the 4.5 Billion year old history of our Planet. The earliest known super-continent on our planet was formed 3.1 Billion Years Ago (!) and is called the Vaalbara. Since its break-up, a series of global islands have taken shape and disintegrated and the most important of these have been -

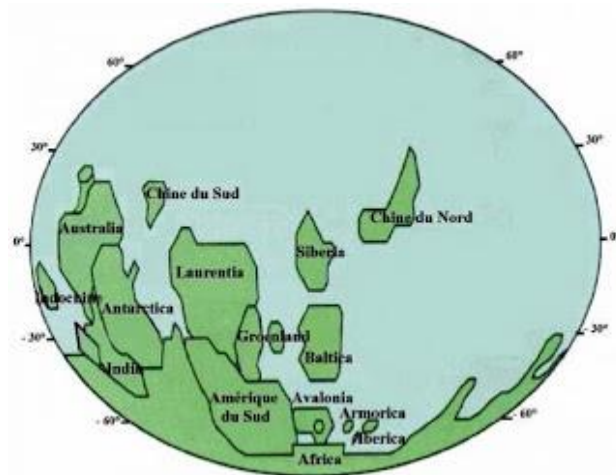
Kenorland, Columbia, Rodinia and the most recent one, the Pangaea.

Arrangement of current continents in past Super-continent- see pic below. Now, which of these is the Earth-Island of our texts, would have to be ascertained through deeper study of the

scriptures, (or maybe even Time-Travel!!). For our current purpose, it should be sufficient to understand that Jambudweep refers to one of these Global Islands, perhaps like the Pangea



Pangea – 250 million years ago



Current locations of Kaapvaal and Pilbara cratons

Vaalbara was an Archean supercontinent consisting of the Kaapvaal Craton (now in eastern South Africa) and the Pilbara Craton (now in north-western Western Australia). E. S. Cheney derived the name from the last four letters of each craton's name. The two cratons consist of crust dating from 2.7 to 3.6 Gya, which would make Vaalbara one of Earth's earliest supercontinents.^[1]

There has been some debate as to when and even if Vaalbara existed.

An Archaean-Palaeoproterozoic (2.8–2.1 Gya) link between South Africa and Western Australia was first proposed by A. Button in 1976. He found a wide range of similarities between the Transvaal Basin in South Africa and the Hamersley Basin in Australia. Button, however, placed Madagascar between Africa and Australia and concluded that Gondwana must have had a long stable tectonic history. Similarly, in the reconstruction of Rogers 1993, 1996 the oldest continent is Ur. In Rogers' reconstructions, however, Kaapvaal and Pilbara are placed far apart already in their Gondwana configuration, a reconstruction contradicted by later orogenic events and incompatible with the Vaalbara hypothesis.

Cheney 1996, nevertheless, found a three-fold stratigraphic similarity and proposed that the two cratons once formed a continent which he named Vaalbara. This model is supported by the palaeomagnetic data of Zegers, de Wit & White 1998.^[4] Reconstructions of the palaeolatitudes of the two cratons at 2.78–2.77 Ga are ambiguous however. In the reconstruction of Wingate 1998 they fail to overlap, but they do in more recent reconstructions, for example Strik et al. 2003.

Other scientists dispute the existence of Vaalbara and explain similarities between the two cratons as the product of global processes. They point to, for example, thick volcanic deposits on other cratons such as Amazonia, São Francisco, and Karnataka. Zimgarn, another proposed supercraton composed of the Zimbabwe and Yilgarn cratons at 2.41 Ga, is distinct from Vaalbara. Zimgarn should have disintegrated around 2.1–2.0 Ga to reassemble as the Kalahari and West Australian (Yilgarn and Pilbara) cratons around 1.95–1.8 Ga.

The Archaean-Palaeoproterozoic Grunehogna Craton in Dronning Maud Land, East Antarctica, formed the eastern part of the Kalahari Craton for at least a billion years. Grunehogna collided

with the rest of East Antarctica during the Mesoproterozoic assembly of the supercontinent Rodinia and the Grenville orogeny. The Neoproterozoic Pan-African orogeny and the assembly of Gondwana/Pannotia produced large shear zones between Grunehogna and Kalahari. During the Jurassic break-up of Gondwana these shear zones finally separated Grunehogna and the rest of Antarctica from Africa.^[8] In the Annandags Peaks, the only exposed parts of Grunehogna, detrital zircons from several crustal sources have been dated to 3.9–3.0 Ga suggesting intracrustal recycling was an important part in the formation of the first cratons

The Kaapvaal craton is marked by dramatic events such as the intrusion of the Bushveld Complex (2.045 Ga) and the Vredefort impact event (2.025 Ga), and no traces of these events have been found in the Pilbara craton, clearly indicating that the two cratons were separated before 2.05 Ga. Furthermore, geochronological and palaeomagnetic evidence show that the two cratons had a rotational 30° latitudinal separation in the time period of 2.78–2.77 Ga, which indicates they were no longer joined after c. 2.8 billion years ago.^[11]

Vaalbara thus remained stable for 1–0.4 Ga and hence had a life span similar to that of later supercontinents such as Gondwana and Rodinia. Some palaeomagnetic reconstructions suggest a Palaeoarchaeon Proto-Vaalbara is possible, although the existence of this 3.6–3.2 Ga continent can't be unequivocally proven.

Evidence for Vaalbara

South Africa's Kaapvaal craton and Western Australia's Pilbara craton have similar early Precambrian cover sequences. Kaapvaal's Barberton granite-greenstone terrane and Pilbara's eastern block show evidence of four large meteorite impacts between 3.2 and 3.5 billion years ago. (Similar greenstone belts are now found at the margins of the Superior craton of Canada.)

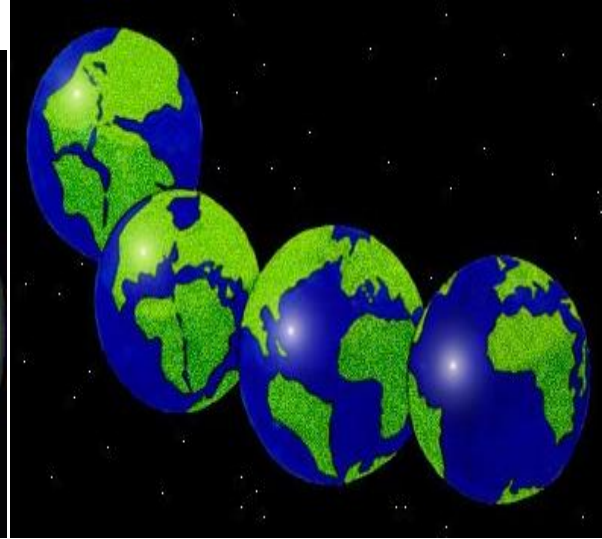
The high temperatures created by the impact's force fused sediments into small glassy spherules. Spherules of 3.5 billion years old exist in South Africa and spherules of a similar age have been found in Western Australia, they are the oldest-known terrestrial impact products. The spherules resemble the glassy chondrules (rounded granules) in carbonaceous chondrites, which are found in carbon-rich meteorites and lunar soils

Remarkably similar lithostratigraphic and chronostratigraphic structural sequences between these two cratons have been noted for the period between 3.5 and 2.7 billion years ago.^[18] Paleomagnetic data from two ultramafic complexes in the cratons showed that at 3,870 million years the two cratons could have been part of the same supercontinent. Both the Pilbara and Kaapvaal cratons show extensional faults which were active about 3,470 million years ago during felsic volcanism and coeval with the impact layers.

Origin of life

The Pilbara and Kaapvaal cratons are some of the oldest rocks in the world and they contain well-preserved Archaean microfossils. A series of international drilling projects has revealed traces of microbial life and photosynthesis from the Archaean in both Africa and Australia.^[19] The oldest widely accepted evidence of photosynthesis by early life forms is molecular fossils found in 2.7 Ga-old shales in the Pilbara Craton. These fossils have been interpreted as traces of eukaryotes and cyanobacteria, though some scientists argue that these biomarkers must have entered these rocks later and date the fossils to 2.15–1.68 Ga. This later time span agrees with estimates based on molecular clocks which dates the eukaryote last common ancestor at 1866–1679 Ma. If the Pilbara fossils are traces of early eukaryotes, they could represent groups that went extinct before modern groups emerged.

The Cosmic Turtle: It is interesting to note, that Hindu texts talk about the Earth (land) being situated on the back of a Turtle which, to me, seems an allegorical representation of the slowly sliding Earth plates, earth plate on the back of a Cosmic Turtle



Tortoise-like slow movement of Earth's Plates

Animation showing the slow movement of Earth plates

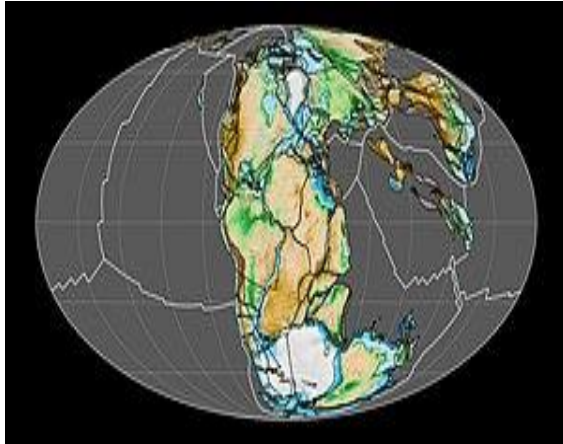
Shatapatha Brahman identifies Earth as the lower shell, the atmosphere as the body and the vault of heaven as the upper shell of this Cosmic Turtle. Also, the serpent around the world is similar to the one in Norse mythology that binds *Midgard* or middle-earth together. Similar concepts can also be found in Chinese, as well as Native American mythology. In fact the *Mayan*, *Incan* and *Navajo* descriptions of the Earth closely mirror the descriptions of *Jambudvip* from ancient Indian texts!

Numerous other scriptures also give matching descriptions which, due to lack of correct understanding, were ridiculed by early European Historians. There's nothing ridiculous about the descriptions from ancient scriptures; we only need the right INSIGHT to decipher their profound meaning! This might be a reflection of beliefs passed on by oral tradition remembering the common origins of mankind or perhaps the wisdom passed on by Gods.



Jambu-dvipa Map according to Native American and Indian texts and Harm

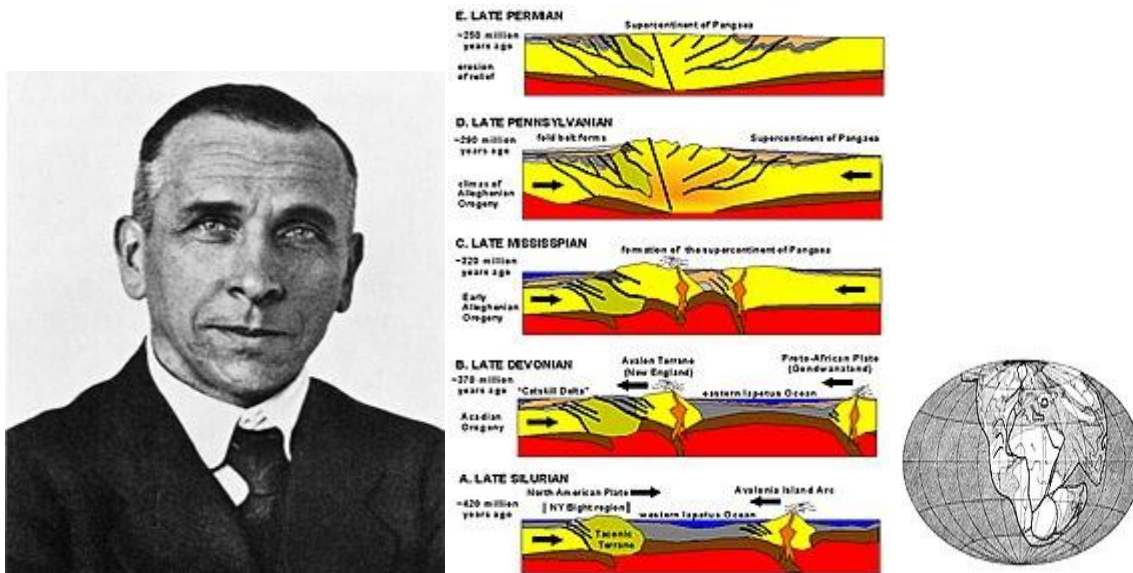
Pangaea



The supercontinent Pangaea in the early Mesozoic (at 200 Ma)

Pangaea or **Pangea**- supercontinent that existed during the late Paleozoic and early Mesozoic eras. It assembled from earlier continental units approximately 335 million years ago, and it began to break apart about 175 million years ago. In contrast to the present Earth and its distribution of continental mass, Pangaea was centred on the Equator and surrounded by the superocean Panthalassa. Pangaea is the most recent supercontinent to have existed and the first to be reconstructed by geologists.

Origin of the concept



Alfred

Wegener c. 1924–1930/Appalachian orogeny/ World map of Pangaea created by Alfred Wegener according to his imagination at that time

The name "Pangaea/Pangea" is derived from Ancient Greek *pan* (πᾶν, "all, entire, whole") and *Gaia* (Γαῖα, "Mother Earth, land"). The concept that the continents once formed a contiguous land mass was first proposed by Alfred Wegener, the originator of the scientific theory of continental drift, in his 1912 publication *The Origin of Continents (Die Entstehung der Kontinente)*.^[11] He expanded upon his hypothesis in his 1915 book *The Origin of Continents and Oceans (Die Entstehung der Kontinente und Ozeane)*, in which he postulated that, before breaking up and drifting to their present locations, all the continents had formed a single supercontinent that he called the "*Urkontinent*".

The name "Pangea" occurs in the 1920 edition of *Die Entstehung der Kontinente und Ozeane*, but only once, when Wegener refers to the ancient supercontinent as "the Pangaea of the Carboniferous" Wegener used the Germanized form "Pangäa", but the name entered German and English scientific literature (in 1922 and 1926, respectively) in the Latinized form "Pangaea" (of the Greek "Pangaia"), especially due to a symposium of the American Association of Petroleum Geologists in November 1926.

Formation

The forming of supercontinents and their breaking up appears to have been cyclical through Earth's history. There may have been several others before Pangaea. The fourth-last supercontinent, called Columbia or Nuna, appears to have assembled in the period 2.0–1.8 Ga.^{[15][16]} Columbia/Nuna broke up and the next supercontinent, Rodinia, formed from the accretion and assembly of its fragments. Rodinia lasted from about 1.1 billion years ago (Ga) until about 750 million years ago, but its exact configuration and geodynamic history are not nearly as well understood as those of the later supercontinents, Pannotia and Pangaea.

When Rodinia broke up, it split into three pieces: the supercontinent of Proto-Laurasia, the supercontinent of Proto-Gondwana, and the smaller Congo craton. Proto-Laurasia and Proto-Gondwana were separated by the Proto-Tethys Ocean. Next Proto-Laurasia itself split apart to form the continents of Laurentia, Siberia, and Baltica. Baltica moved to the east of Laurentia, and Siberia moved northeast of Laurentia. The splitting also created two new oceans, the Iapetus Ocean and Paleoasian Ocean. Most of the above masses coalesced again to form the relatively

short-lived supercontinent of Pannotia. This supercontinent included large amounts of land near the poles and, near the equator, only a relatively small strip connecting the polar masses. Pannotia lasted until 540 Ma, near the beginning of the Cambrian period and then broke up, giving rise to the continents of Laurentia, Baltica, and the southern supercontinent of Gondwana.

In the Cambrian period, the continent of Laurentia, which would later become North America, sat on the equator, with three bordering oceans: the Panthalassic Ocean to the north and west, the Iapetus Ocean to the south, and the Khanty Ocean to the east. In the Earliest Ordovician, around 480 Ma, the microcontinent of Avalonia – a landmass incorporating fragments of what would become eastern Newfoundland, the southern British Isles, and parts of Belgium, northern France, Nova Scotia, New England, South Iberia, and northwest Africa – broke free from Gondwana and began its journey to Laurentia. Baltica, Laurentia, and Avalonia all came together by the end of the Ordovician to form a minor supercontinent called Euramerica or Laurussia, closing the Iapetus Ocean. The collision also resulted in the formation of the northern Appalachians. Siberia sat near Euramerica, with the Khanty Ocean between the two continents. While all this was happening, Gondwana drifted slowly towards the South Pole. This was the first step of the formation of Pangaea.

The second step in the formation of Pangaea was the collision of Gondwana with Euramerica. By the Silurian, 440 Ma, Baltica had already collided with Laurentia, forming Euramerica. Avalonia had not yet collided with Laurentia, but as Avalonia inched towards Laurentia, the seaway between them, a remnant of the Iapetus Ocean, was slowly shrinking. Meanwhile, southern Europe broke off from Gondwana and began to move towards Euramerica across the newly formed Rheic Ocean. It collided with southern Baltica in the Devonian, though this microcontinent was an underwater plate. The Iapetus Ocean's sister ocean, the Khanty Ocean, shrank as an island arc from Siberia collided with eastern Baltica (now part of Euramerica). Behind this island arc was a new ocean, the Ural Ocean.

By the late Silurian, North and South China split from Gondwana and started to head northward, shrinking the Proto-Tethys Ocean in their path and opening the new Paleo-Tethys Ocean to their south. In the Devonian Period, Gondwana itself headed towards Euramerica, causing the Rheic Ocean to shrink. In the Early Carboniferous, northwest Africa had touched the southeastern coast

of Euramerica, creating the southern portion of the Appalachian Mountains, the Meseta Mountains, and the Mauritanide Mountains. South America moved northward to southern Euramerica, while the eastern portion of Gondwana (India, Antarctica, and Australia) headed toward the South Pole from the equator. North and South China were on independent continents. The Kazakhstania microcontinent had collided with Siberia. (Siberia had been a separate continent for millions of years since the deformation of the supercontinent Pannotia in the Middle Carboniferous.)

Western Kazakhstania collided with Baltica in the Late Carboniferous, closing the Ural Ocean between them and the western Proto-Tethys in them (Uralian orogeny), causing the formation of not only the Ural Mountains but also the supercontinent of Laurasia. This was the last step of the formation of Pangaea. Meanwhile, South America had collided with southern Laurentia, closing the Rheic Ocean and forming the southernmost part of the Appalachians and Ouachita Mountains. By this time, Gondwana was positioned near the South Pole, and glaciers were forming in Antarctica, India, Australia, southern Africa, and South America. The North China block collided with Siberia by the Late Carboniferous, completely closing the Proto-Tethys Ocean.

By the Early Permian, the Cimmerian plate split from Gondwana and headed towards Laurasia, thus closing the Paleo-Tethys Ocean, but forming a new ocean, the Tethys Ocean, in its southern end. Most of the landmasses were all in one. By the Triassic Period, Pangaea rotated a little, and the Cimmerian plate was still travelling across the shrinking Paleo-Tethys until the Middle Jurassic. The Paleo-Tethys had closed from west to east, creating the Cimmerian Orogeny. Pangaea, which looked like a *C*, with the new Tethys Ocean inside the *C*, had rifted by the Middle Jurassic, and its deformation is explained below.

Evidence of existence

Fossil evidence for Pangaea includes the presence of similar and identical species on continents that are now great distances apart. For example, fossils of the therapsid *Lystrosaurus* have been found in South Africa, India and Antarctica, alongside members of the *Glossopteris* flora, whose distribution would have ranged from the polar circle to the equator if the continents had been in

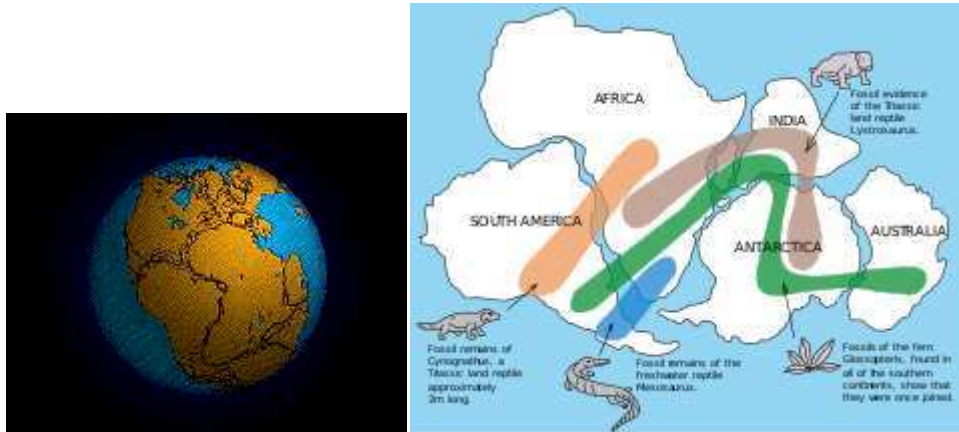
their present position; similarly, the freshwater reptile *Mesosaurus* has been found in only localized regions of the coasts of Brazil and West Africa.

Additional evidence for Pangaea is found in the geology of adjacent continents, including matching geological trends between the eastern coast of South America and the western coast of Africa. The polar ice cap of the Carboniferous Period covered the southern end of Pangaea. Glacial deposits, specifically till, of the same age and structure are found on many separate continents that would have been together in the continent of Pangaea.

Paleomagnetic study of apparent polar wandering paths also support the theory of a supercontinent. Geologists can determine the movement of continental plates by examining the orientation of magnetic minerals in rocks; when rocks are formed, they take on the magnetic properties of the Earth and indicate in which direction the poles lie relative to the rock. Since the magnetic poles drift about the rotational pole with a period of only a few thousand years, measurements from numerous lavas spanning several thousand years are averaged to give an apparent mean polar position. Samples of sedimentary rock and intrusive igneous rock have magnetic orientations that are typically an average of the "secular variation" in the orientation of magnetic north because their remanent magnetizations are not acquired instantaneously. Magnetic differences between sample groups whose age varies by millions of years is due to a combination of true polar wander and the drifting of continents. The true polar wander component is identical for all samples, and can be removed, leaving geologists with the portion of this motion that shows continental drift and can be used to help reconstruct earlier continental positions.

The continuity of mountain chains provides further evidence for Pangaea. One example of this is the Appalachian Mountains chain, which extends from the southeastern United States to the Caledonides of Ireland, Britain, Greenland, and Scandinavia.

Rifting and break-up



The distribution of fossils across the continents is one line of evidence pointing to the existence of Pangaea./Animation of the rifting of Pangaea

There have been three major phases in the break-up of Pangaea. The first phase began in the Early-Middle Jurassic (about 175 Ma), when Pangaea began to rift from the Tethys Ocean in the east to the Pacific in the west. The rifting that took place between North America and Africa produced multiple failed rifts. One rift resulted in a new ocean, the North Atlantic Ocean.^[22]

The Atlantic Ocean did not open uniformly; rifting began in the north-central Atlantic. The South Atlantic did not open until the Cretaceous when Laurasia started to rotate clockwise and moved northward with North America to the north, and Eurasia to the south. The clockwise motion of Laurasia led much later to the closing of the Tethys Ocean and the widening of the "Sinus Borealis", which later became the Arctic Ocean. Meanwhile, on the other side of Africa and along the adjacent margins of east Africa, Antarctica and Madagascar, new rifts were forming that would lead to the formation of the southwestern Indian Ocean that would open up in the Cretaceous.

The second major phase in the break-up of Pangaea began in the Early Cretaceous (150–140 Ma), when the minor supercontinent of Gondwana separated into multiple continents (Africa, South America, India, Antarctica, and Australia). The subduction at Tethyan Trench probably caused Africa, India and Australia to move northward, causing the opening of a "South Indian Ocean". In the Early Cretaceous, Atlantica, today's South America and Africa, finally

separated from eastern Gondwana (Antarctica, India and Australia). Then in the Middle Cretaceous, Gondwana fragmented to open up the South Atlantic Ocean as South America started to move westward away from Africa. The South Atlantic did not develop uniformly; rather, it rifted from south to north.

Also, at the same time, Madagascar and India began to separate from Antarctica and moved northward, opening up the Indian Ocean. Madagascar and India separated from each other 100–90 Ma in the Late Cretaceous. India continued to move northward toward Eurasia at 15 centimeters (6 in) a year (a plate tectonic record), closing the eastern Tethys Ocean, while Madagascar stopped and became locked to the African Plate. New Zealand, New Caledonia and the rest of Zealandia began to separate from Australia, moving eastward toward the Pacific and opening the Coral Sea and Tasman Sea.

The third major and final phase of the break-up of Pangaea occurred in the early Cenozoic (Paleocene to Oligocene). Laurasia split when North America/Greenland (also called Laurentia) broke free from Eurasia, opening the Norwegian Sea about 60–55 Ma. The Atlantic and Indian Oceans continued to expand, closing the Tethys Ocean.

Meanwhile, Australia split from Antarctica and moved quickly northward, just as India had done more than 40 million years before. Australia is currently on a collision course with eastern Asia. Both Australia and India are currently moving northeast at 5–6 centimeters (2–3 in) a year. Antarctica has been near or at the South Pole since the formation of Pangaea about 280 Ma. India started to collide with Asia beginning about 35 Ma, forming the Himalayan orogeny, and also finally closing the Tethys Seaway; this collision continues today. The African Plate started to change directions, from west to northwest toward Europe, and South America began to move in a northward direction, separating it from Antarctica and allowing complete oceanic circulation around Antarctica for the first time. This motion, together with decreasing atmospheric carbon dioxide concentrations, caused a rapid cooling of Antarctica and allowed glaciers to form. This glaciation eventually coalesced into the kilometers-thick ice sheets seen today.^[23] Other major events took place during the Cenozoic, including the opening of the Gulf of California, the uplift of the Alps, and the opening of the Sea of Japan. The break-up of Pangaea continues today in the Red Sea Rift and East African Rift.

Tectonic plate shift



The breakup of Pangaea over time/An early Mesozoic ammonite from Pangaea

Pangaea's formation is now commonly explained in terms of plate tectonics. The involvement of plate tectonics in Pangaea's separation helps to show how it did not separate all at once, but at different times, in sequences. Additionally, after these separations, it has also been discovered that the separated land masses may have also continued to break apart multiple times. The formation of each environment and climate on Pangaea is due to plate tectonics, and thus, it is as a result of these shifts and changes different climatic pressures were placed on the life on Pangaea. Although plate tectonics was paramount in the formation of later land masses, it was also essential in the placement, climate, environments, habitats, and overall structure of Pangaea.

What can also be observed in relation to tectonic plates and Pangaea, is the formations to such plates. Mountains and valleys form due to tectonic collisions as well as earthquakes and chasms. Consequentially, this shaped Pangaea and animal adaptations. Furthermore, plate tectonics can contribute to volcanic activity,^[25] which is responsible for extinctions and adaptations that have evidently affected life over time, and without doubt on Pangaea.

Life

For the approximately 160 million years Pangaea existed, many species did well, whereas others struggled. The Traversodonts were an example of such successful animals. Plants dependent on spore reproduction were largely replaced by the gymnosperms, which reproduce through the use of seeds. Later on, insects (including beetles and cicadas) also thrived, during the Permian period 299 to 252 million years ago. However, the Permian extinction at 252 Mya greatly impacted these insects in mass extinction, being the only mass extinction to affect insects. When the Triassic Period came, many reptiles were able to also thrive, including Archosaurs, which were an ancestor to modern-day crocodiles and birds.

Little is known about marine life during the existence of Pangaea owing to the lack of substantial evidence, e.g. fossilized remains. However, a few marine animals have been identified - the Ammonites and Brachiopods. Additionally, evidence pointing towards massive reefs with varied ecosystems, especially in the species of sponges and coral, have also been discovered.^[28]

Climate change after Pangaea

The reconfiguration of continents and oceans after the breakup of Pangea changed the world's climate. There is scientific evidence that this change was drastic. When the continents separated and reformed themselves, it changed the flow of the oceanic currents and winds. The scientific reasoning behind all of the changes is Continental Drift. The theory of Continental Drift, created by Alfred Wegener, explained how the continents shifted Earth's surface and how that affected many aspects such as climate, rock formations found on different continents and plant and animal fossils.^[29] Wegener studied plant fossils from the frigid Arctic of Svalbard, Norway. He determined that such plants were not adapted to a glacial climate. The fossils he found were from tropical plants that were adapted to thrive in warmer and tropical climates.^[30] Because he would not assume that the plant fossils were capable of traveling to a different place, he suspected that Svalbard had had a warmer, less frigid climate in the past.

When Pangaea separated, the reorganization of the continents changed the function of the oceans and seaways. The restructuring of the continents, changed and altered the distribution of warmth and coolness of the oceans. When North America and South America connected, it stopped

equatorial currents from passing from the Atlantic Ocean to the Pacific Ocean.^[32] Researchers have found evidence by using computer hydrological models to show that this strengthened the Gulf Stream by diverting more warm currents towards Europe. Warm waters at high latitudes led to an increased evaporation and eventually atmospheric moisture. Increased evaporation and atmospheric moisture resulted in increased precipitation. Evidence of increased precipitation is the development of snow and ice that covers Greenland, which led to an accumulation of the icecap. Greenland's growing ice cap led to further global cooling. Scientists also found evidence of global cooling through the separation of Australia and Antarctica and the formation of the Antarctic Ocean. Ocean currents in the newly formed Antarctic or Southern Ocean created a circumpolar current. The creation of the new ocean that caused a circumpolar current eventually led to atmospheric currents that rotated from west to east. Atmospheric and oceanic currents stopped the transfer of warm, tropical air and water to the higher latitudes. As a result of the warm air and currents moving northward, Antarctica cooled down so much that it became frigid.

Although many of Alfred Wegener's theories and conclusions were valid, scientists are constantly coming up with new innovative ideas or reasoning behind why certain things happen. Wegener's theory of Continental Drift was later replaced by the theory of tectonic plates.

Implications of extinction

There is evidence to suggest that the deterioration of northern Pangaea contributed to the Permian Extinction, one of Earth's five major mass extinction events, which resulted in the loss of over 90% of marine and 70% of terrestrial species. There were three main sources of environmental deterioration that are believed to have had a hand in the extinction event.

The first of these sources is a loss of oxygen concentration in the ocean, which caused deep water regions called the lysocline to grow shallower. With the lysocline shrinking, there were fewer places for calcite to dissolve in the ocean, considering calcite only dissolves at deep ocean depths. This led to the extinction of carbonate producers such as brachiopods and corals that relied on dissolved calcite to survive. The second source is the eruption of the Siberian Traps, a large volcanic event that is argued to be the result of Pangaeon tectonic movement.^[34] This had several negative repercussions on the environment, including metal loading and excess

atmospheric carbon. Metal loading, the release of toxic metals from volcanic eruptions into the environment, led to acid rain and general stress on the environment. These toxic metals are known to infringe on vascular plants' ability to photosynthesize, which may have resulted in the loss of Permian period flora. Excess carbon dioxide in the atmosphere is believed to be the main cause of the shrinking of lysocline areas. The third cause of this extinction event that can be attributed to northern Pangaea is the beginnings of anoxic ocean environments, or oceans with very low oxygen concentrations. The mix of anoxic oceans and ocean acidification due to metal loading led to increasingly acidic oceans, which ultimately led to the extinction of benthic species.

Mandala architecture, by Tracy Cochran, *Omni*-Vol.16 No.11 May1994-P.79-Copyright by *Omni*

In Tibetan Buddhism, the mandala is a ritual instrument, much like a mantra, used to assist meditation and concentration. Throughout history, these pictorial temples--intricate, two-dimensional, multi-colored patterns of concentric circles, squares, and other shapes--have signified the human need for wholeness, order, and balance. But while many people of the West accept mandalas as representative of a cosmic force, few understand they are meant to be blueprints as well. Indeed, a Tantric Buddhist meditator studies a two-dimensional mandala like an architect, building up in his mind the image of a palace encompassing the sacred principles of Buddhist philosophy.

Now, graduate students and faculty at Cornell University are bringing the three-dimensional palace of the mandala to life. Working with Tibetan Buddhist monk, Pema Losang Chogyen, the team has created, on the computer, a gorgeous geometric palace that blooms from a two-dimensional sand mandala like a flower in a time-lapse film. "We write software that makes synthetic images, enabling us to visualize how new buildings look before they are build," explains senior research staff member James Ferwerda.

Toward that end, Ferwerda explains, "we model the process of light reflection. We create a geometric model, then we study the materials that go into the building, exactly the way physicists and chemists analyze material. Then we simulate the way light reflects and refracts and is transferred by these materials, and that's how we make an image." For instance, a cornice of intricately sculptured gold glints as though struck by the sun, jewels glow, and ornate silken banners hang heavy around the crown of the palace.

To some, the realism is richly ironic since mandalas are meant to depict the ultimate Buddhist truth that nothing has inherent existence. But Chogyen believes the effort at Cornell may be the first of many computer graphics projects to be undertaken with Buddhists.

Already the computer graphics department at Cornell has established a scholarship for Tibetans. And to whet appetites for the rest of us, the

CHAPTER XVI

Roro Jonggrang-the Slim Girl.

Shiva - Durgā temple called Prambanan in Indonesia

Candi Prambanan or Candi Rara Jonggrang is a 9 century Hindu temple compound in Central Java, Indonesia, dedicated to the Trimurti, the expression of God as the Creator (Brahma), the Sustainer (Vishnu) and the Destroyer (Shiva). The temple compound is located approximately 18 km east of Yogyakarta city on the boundary between Yogyakarta and Central Java province. A statue of the Hindu goddess Durga from the Shiva temple at Prambanan, Java, Indonesia, c. 750 - c. 950 CE. According to legend, the statue is a result of the transformation into stone of a local princess. by her cruel husband. Rara Jonggrang means *the Slim Girl*. Know you can see it as the *Durga statue* in the north hall of the Prambanan main temple. This grand Hindu temple locally known in Javanese as *Rara Jonggrang*, is a temple complex dating from the 9th century, it is notable for its shrines and statues of Hindu pantheon and Ramayana bas relief. Murtis or Hindu deity statues venerated in Prambanan complex including the main deity Shiva Mahadeva, Vishnu, Brahma, Durga Mahisasuramardini, Ganesha, Agastya, and Nandi bull.

The Tri Mandala principle

The Prambanan temple consists of 3 zones, according to the Indonesian Hindu *tri mandala* principle:

- **Nista Mandala (outer zone)** — a large space marked by a walled perimeter, which originally measured about 390 m per side, and contained a sacred garden, an ashram for monks and accommodation for the priests.

- **Madya Mandala (middle zone)** that contains hundreds of small temples

- **Utama Mandala (holiest inner sanctum)** that contains 8 main temples and 8 small shrines.

Just like Borobudur, Prambanan is structured in three mandalas, from the less holy to the holiest realms. Both the compound site plan (horizontally) and the temple structure (vertically) represents 3 layers of the Universe:

- **Bhurloka** (in Buddhism: *Kāmadhātu*), the lowest realm of common mortals; humans, animals also demons. Where humans are still bound by their lust, desire and unholy way of life. The outer courtyard and the foot (base) part of each temples is symbolized the realm of bhurloka.

- **Bhuvarloka** (in Buddhism: *Rupadhatu*), the middle realm of holy people, occupied by rishis, ascetics, and lesser gods. People here begin to see the light of truth. The middle courtyard and the body of each temple symbolizes the realm of bhuvarloka.

- **Svarloka** (in Buddhism: *Arupadhatu*), the highest and holiest realm, reserved for the gods. Also known as svargaloka. The inner courtyard and the roof of each temple symbolizes the realm of svarloka. The roof of Prambanan temples are adorned and crowned with ratna (sanskrit: jewel), the shape of Prambanan ratna took the altered form of vajra that represent diamonds. In ancient Java temple architecture, ratna is the Hindu counterpart of the Buddhist stupa, and served as the temple's pinnacle.

The Shiva temple

The inner zone or central compound is the holiest among the three zones. It is the square elevated platform surrounded by a square stone wall with stone gates on each four cardinal points. This holiest compound is assembled of 8 shrines or *candi*. The 3 main shrines, called are dedicated to the three Gods of the Trimurti: Brahma, Vishnu, and Shiva Mahadeva.

The Shiva temple is the tallest and largest structure in Prambanan Loro Jonggrang complex. Candi Shiva — the central shrine — rises 47 m high and contains 4 inner chambers that face the 4 points of the compass. The eastern gate of Shiva temple is flanked by two small shrines, dedicated to the guardian gods Mahakala and Nandhisvara.



The Shiva temple is encircled with galleries adorned with bas-reliefs telling the Ramayana. To follow the story accurately, visitors must enter from the East side and began to perform *pradakshina*.

The Shiva shrine is located at the center and contains five chambers, four small chambers in every cardinal direction and one bigger main chamber in the central part of the temple. The east chamber connects to the central chamber that houses the largest temple in Prambanan, a three-metre high statue of Shiva Mahadeva.

The statue bears the *lakṣana* (attributes or symbol) of Shiva such as the skull and sickle (crescent) at the crown, and third eye on the forehead. The four hands that holds Shiva's symbols: prayer beads, feather duster, and *trisula* (trident).

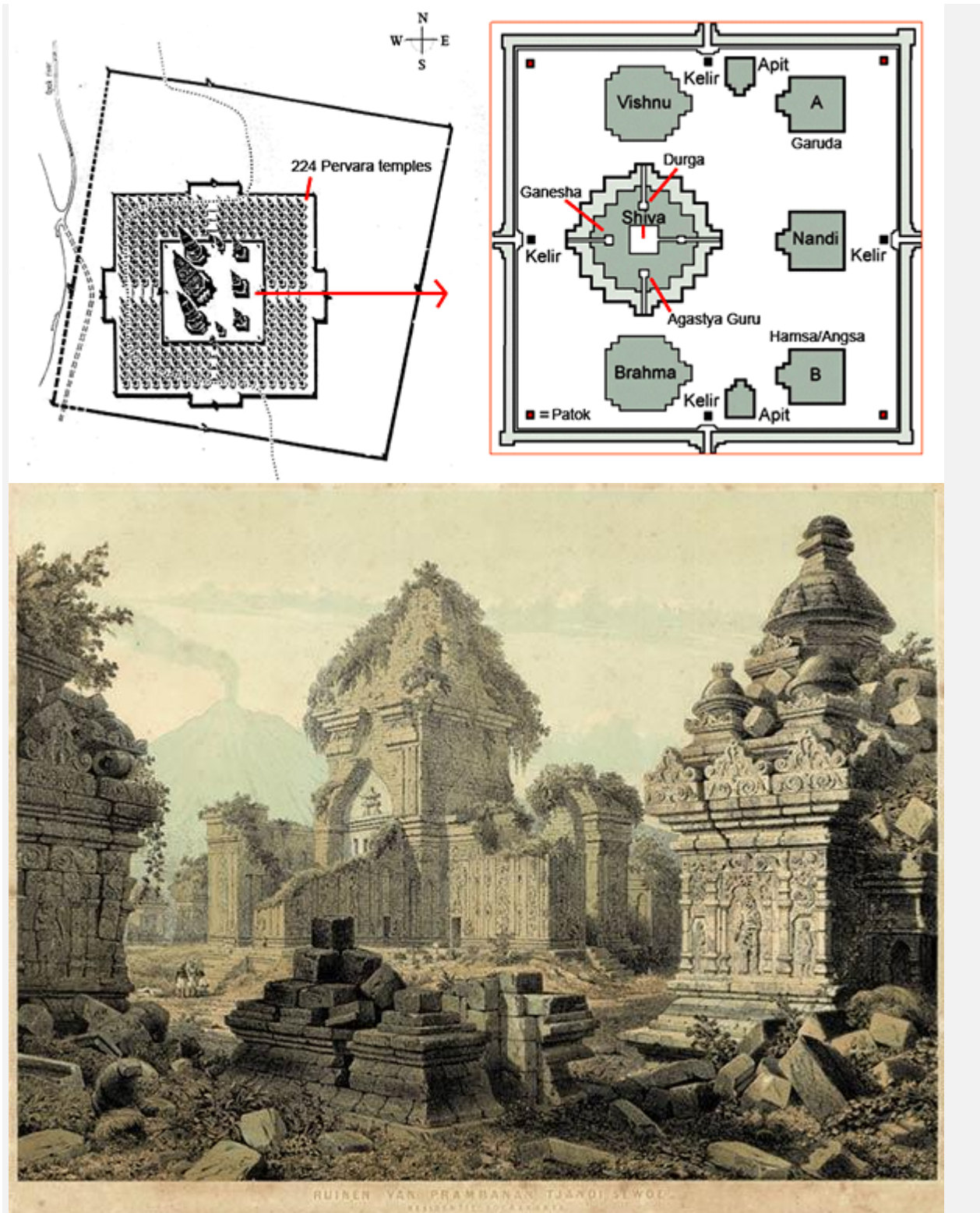
The other three smaller chambers contain statues of Shiva's consort Durga Mahisasuramardini, Rishi Agastya — one of the Saptarishis who took the yogic sciences across South Asia — and Ganesha.

The shrine of Durga is also called the temple of Rara Jonggrang, after the Javanese legend of Rara Jonggrang. Indeed, Javanese folk religion was always superposed with the more elitist Shiva-Buddha syncretism.

A well containing the *peripih* was discovered under the center of the Shiva temple. The stone casket contained sheets of copper, charcoal, ashes, earth, 20 coins, jewels, glass, pieces of gold and silver leaves, seashells and 12 gold leaves (which were cut in the shapes of a turtle, Nāga serpent, padma, altar, and an egg).

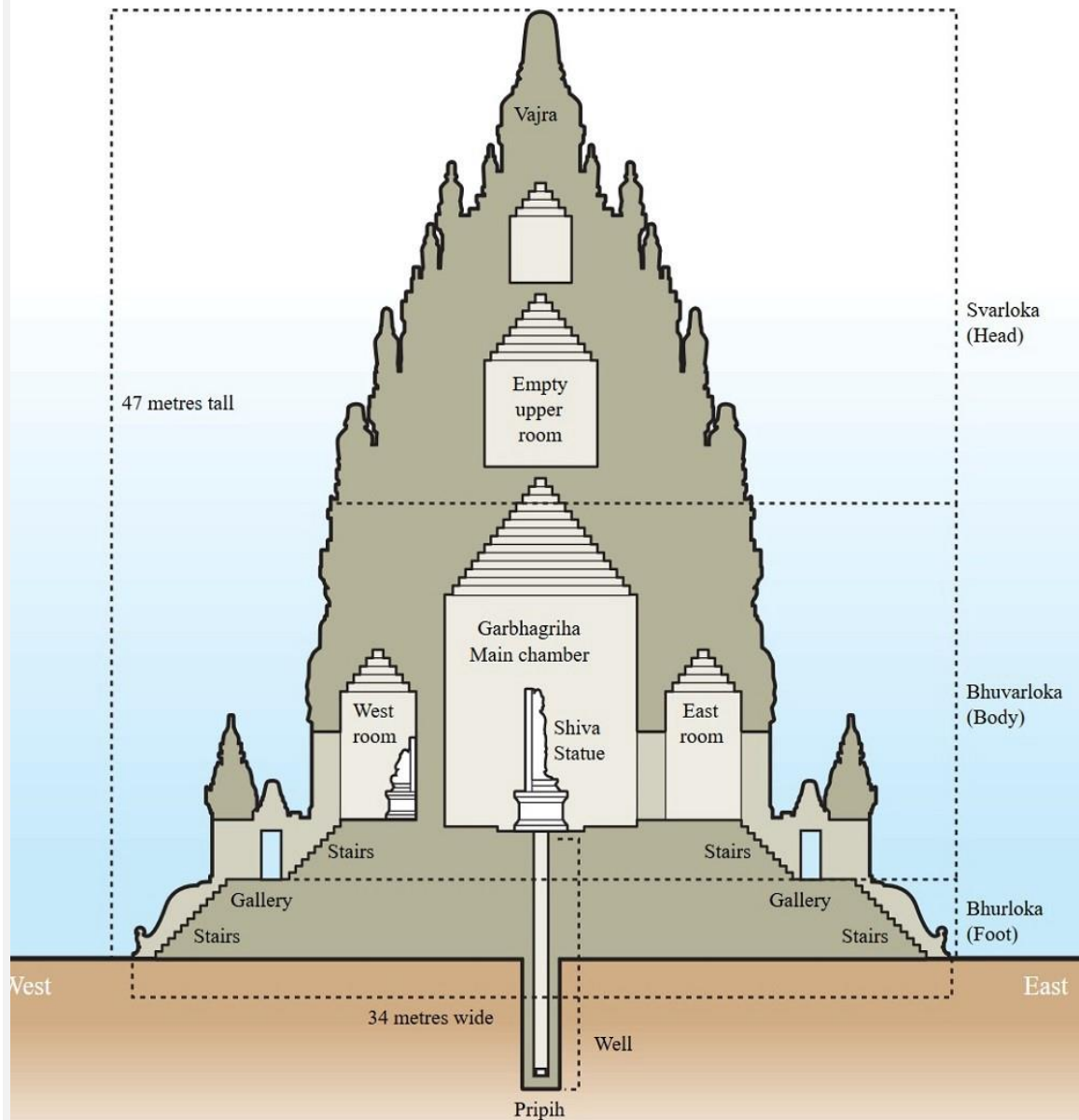


The temple complex consists of three zones, each of which is surrounded by a wall: an inner and most holy zone containing eight main temples and eight smaller shrines, each of which have been reconstructed; a middle zone containing 224 small *pervara* temples of which only two have been reconstructed; and an outer zone without temples, where the very large number of temple authorities and priests would have lived. The most prominent temple, dedicated to Shiva, rises to 154 feet (47 meters) and has four chambers in the cardinal directions. The eastern chamber contains a ten-foot statue of Shiva, the north chamber has a statue of Shiva's consort *Durga Mahisasuramardini* depicting Durga as the slayer of the Bull demon, the west chamber houses a statue of Shiva's son Ganesh, and the south is occupied by Shiva's teacher, the sage Agastya. The temple is adorned with panels of bas-relief sculptures telling the story of the Hindu epic the Ramayana and the Bhagavata Purana.



Shiva Temple Cross Section

Prambanan Temple Complex, Indonesia



The sacred peripih is the core of the shrine in all Indonesian temples

Brahma and Vishnu temples

The two other main shrines are those of Vishnu on the north side of the Shiva shrine, and the one of Brahma on the south.

Vahana temples

The other three shrines in front of the three main temples are dedicated to the vehicles (vahana) of the respective gods — the bull Nandi for Shiva, the sacred swan Hamsa for Brahma, and Vishnu's kite Garuda. Precisely in front of the Shiva temple is the Nandi temple, which contains a statue of the Nandi bull.

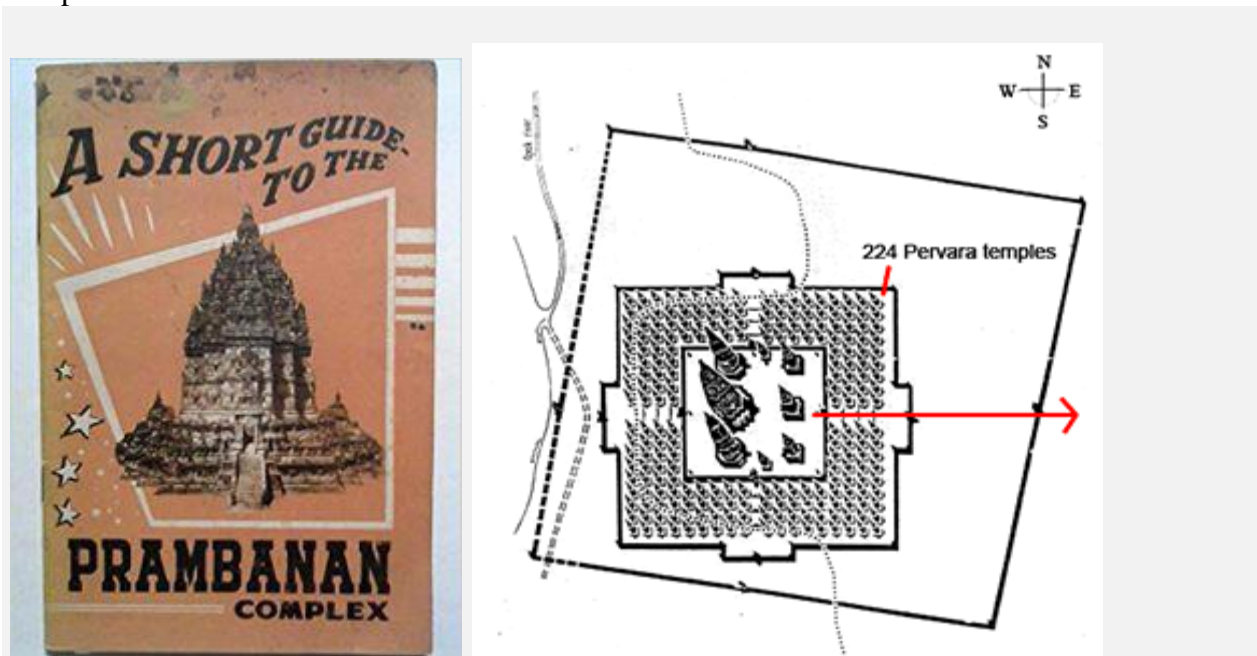
Apit temples

Between these rows of the main temple, on the north and south side, stand two Candi Apit temples. Apit in Javanese means “flank”. The two temples flanked the inner courtyard on the north and south sides. The room inside the Apit temples is now empty. However, it is probable that the southern Apit temple was dedicated to Sarasvati, while the northern Apit temple was dedicated to Lakshmi.

Beside these 8 main temples, there are also 8 smaller shrines: 4 Candi Kelir on four cardinal directions of the entrance, and 4 Candi Patok on four corners of the inner zone.

- **Kelir** in Javanese means “screen”, especially referring to wayang kulit, fabric screen. It refers to a structure that obstructs the main cardinal entry of the gopura, similar to the aling-aling in Balinese architecture.

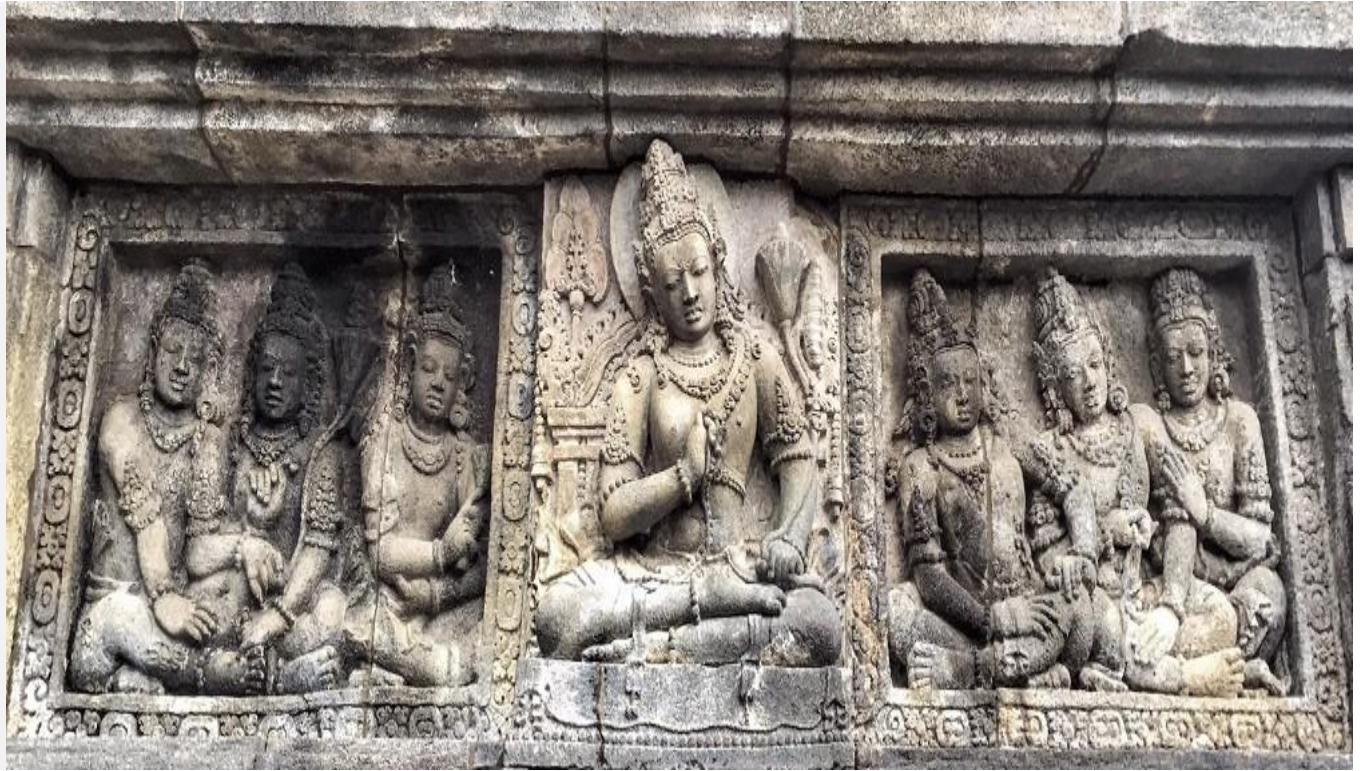
- **Patok** in Javanese means “peg”. It refers to the shrine location at the four corners of the inner compound.



Pervara temples

The two walled perimeters that surround the remaining two yards to the interior are oriented to the four cardinal points. The second yard's walled perimeter surrounds a terraced area that consists of four rows containing 44, 52, 60, and 68 pervara temples, or 224 structures in total. Most of them are still in ruins and only some have been reconstructed.

The 16 temples located at the corners of the rows face two directions; the remaining 208 structures open to only one of the four cardinal directions. These shrines are called *Candi Perwara* — guardian or complementary temples. It is believed they were meditation place for priests and worship place for devotees.



Lokapalas

The *lokapalas*, the celestial guardians of directions, can be found in Shiva temple.

The Rishis

The rishis were carved on Brahma temple wall, while in Vishnu temple the figures of male deities devatas are flanked by two apsaras.

Lion and Kalpavriksha

The lower outer wall of these temples was adorned with a row of small niches containing an image of sinha (a lion) flanked by two panels depicting kalpavriksha trees. These wish-fulfilling sacred trees are flanked on either side by kinnaras or animals, such as pairs of birds, deer, monkeys, horses, elephants etc.

<https://www.youtube.com/watch?v=qmyBQeLSKDc>

Kala

The carvings include the famous Kala representations that are seen everywhere on Javanese temples. It reminds of the fact that Time swallows everything.

The Deer park

A deer park on the perimeter that symbolizes the place where Buddha gave his first lecture after attaining enlightenment. Because of their proximity, the traveler might worship at both temples. As such, the temple park is a testament to the inclusive belief system of the Javanese: not Buddhist or Hindu, but both.



The deer park under the sacred Waringin trees

The Ramayana and the Bhagavata Purana

The temple is adorned with bas-reliefs telling the story of the Ramayana and the Bhagavata Purana. The *Ramayana* starts on the Shiva temple balustrade and continues on the Brahma temple.

On the balustrades in the Vishnu temple there is series of bas-relief panels depicting the stories of lord Krishna from the *Bhagavata Purana*. The bas-relief of the *Ramayana* illustrate how Sita, the wife of Rama, is abducted by Ravana. The monkey king Hanuman brings his army to help Rama and rescue Sita.

The story starts from the east entrance where visitors turn left and move around the temple gallery in a clockwise direction. This conforms with the *pradaksina* performed by pilgrims who move in a clockwise direction while keeping the sanctuary to their right.

This story is also shown by the Ramayana Ballet, regularly performed every full moon night at the Trimurti open-air theatre.

<https://www.youtube.com/watch?v=NJDtkguNa58>

The Prambanan Plain

The Prambanan Plain spans between the southern slopes of Merapi volcano in the north and the Sewu mountain range in the south. The plain, valley and hills around it are the location of the earliest Buddhist temples in Indonesia.

It is called ‘ the plain of a Thousand Temples’ — this area was an important spiritual and political center.

- **Lumbung** — Buddhist-style, consisting of one main temple surrounded by 16 smaller ones.
- **Candi Bubrah** — Buddhist temple
- **Sewu** — Buddhist temple complex, older than Roro Jonggrang. A main sanctuary surrounded by many smaller temples. Well preserved guardian statues, replicas of which stand in the central courtyard at the Jogja Kraton.
- **Candi Morangan** — Hindu temple complex buried several meters under volcanic ashes, located northwest from Prambanan.
- **Candi Plaosan** — Buddhist temple built by a Hindu king for his Buddhist queen. Two main temples with reliefs of Bodhisatva and Tara. Also rows of slender stupas.
- **Ratu Boko** — Complex of fortified gates, bathing pools, and elevated walled stone enclosure, all located on top of the hill.
- **Sajiwan** — Buddhist temple decorated with reliefs concerning education. The base and staircase

are decorated with animal fables.

- **Banyunibo** — A Buddhist temple with unique design of roof.
- **Barong** — A Hindu temple complex with large stepped stone courtyard. Located on the slope of the hill.
- **Ijo** — A cluster of Hindu temple located near the top of Ijo hill. The main temple houses a large lingam and yoni.
- **Arca Bugisan** — Seven Buddha and bodhisattva statues, some collapsed, representing different poses and expressions.
- **Kalasan** — 8th-century Buddhist temple built in commemoration of the marriage of a king and his princess bride, ornamented with finely carved reliefs.
- **Sari** — Once a sanctuary for Buddhist priests. 8th century. Nine stupas at the top with two rooms beneath, each believed to be places for priests to meditate.
- **Sambisari**. Hindu temple discovered in 1966, once buried 6 m under volcanic ash. The main temple houses a linga and yoni, and the wall surround it displayed the images of Agastya, Durga, and Ganesha.
- **Gebang** — A small Hindu temple discovered in 1937 located near the Yogyakarta northern ring-road. The temple displays the statue of Ganesha and interesting carving of faces on the roof section.
- **Candi Gana** — Rich in statues, bas-reliefs and sculpted stones. Frequent representations of children or dwarfs with raised hands. Located in the middle of a housing complex. Under restoration since 1997.
- **Candi Kedulan** — Discovered in 1994. Square base of main temple visible. Secondary temples not yet fully excavated.





***Prambanan Temple Compounds** is the World Heritage designation of a group of Hindu and Buddhist temple compounds that lie on the border between Yogyakarta and Central Java, Indonesia. It comprises Prambanan, Lumbung, Bubrah and Sewu temple compounds, all are located within Prambanan Archaeological Park.*

Prambanan Temple Compounds

Built in the 10th century, this is the largest temple compound dedicated to Shiva in Indonesia. Rising above the centre of the last of these concentric squares are three temples decorated with reliefs illustrating the epic of the *Ramayana*, dedicated to the three great Hindu divinities (Shiva, Vishnu and Brahma) and three temples dedicated to the animals who serve them.



Outstanding Universal Value

Brief synthesis

Prambanan Temple Compounds consist of Prambanan Temple (also called Loro Jonggrang), Sewu Temple, Bubrah Temple and Lumbung Temple. Prambanan Temple itself is a complex consisting of 240 temples. All the mentioned temples form the Prambanan Archaeological Park and were built during the heyday of Sailendra's powerful dynasty in Java in the 8th century AD. These compounds are located on the border between the two provinces of Yogyakarta and Central Java on Java Island.

While Loro Jonggrang, dating from the 9th century, is a brilliant example of Hindu religious bas-reliefs, Sewu, with its four pairs of Dwarapala giant statues, is Indonesia's largest Buddhist complex including the temples of Lumbung, Bubrah and Asu (Gana temple). The Hindu temples are decorated with reliefs illustrating the Indonesian version of the Ramayana epic which are masterpieces of stone carvings. These are surrounded by hundreds of shrines that have been arranged in three parts showing high levels of stone building technology and architecture from the 8th century AD in Java. With over 500 temples, Prambanan Temple Compounds represents not only an architectural and cultural treasure, but also a standing proof of past religious peaceful cohabitation.

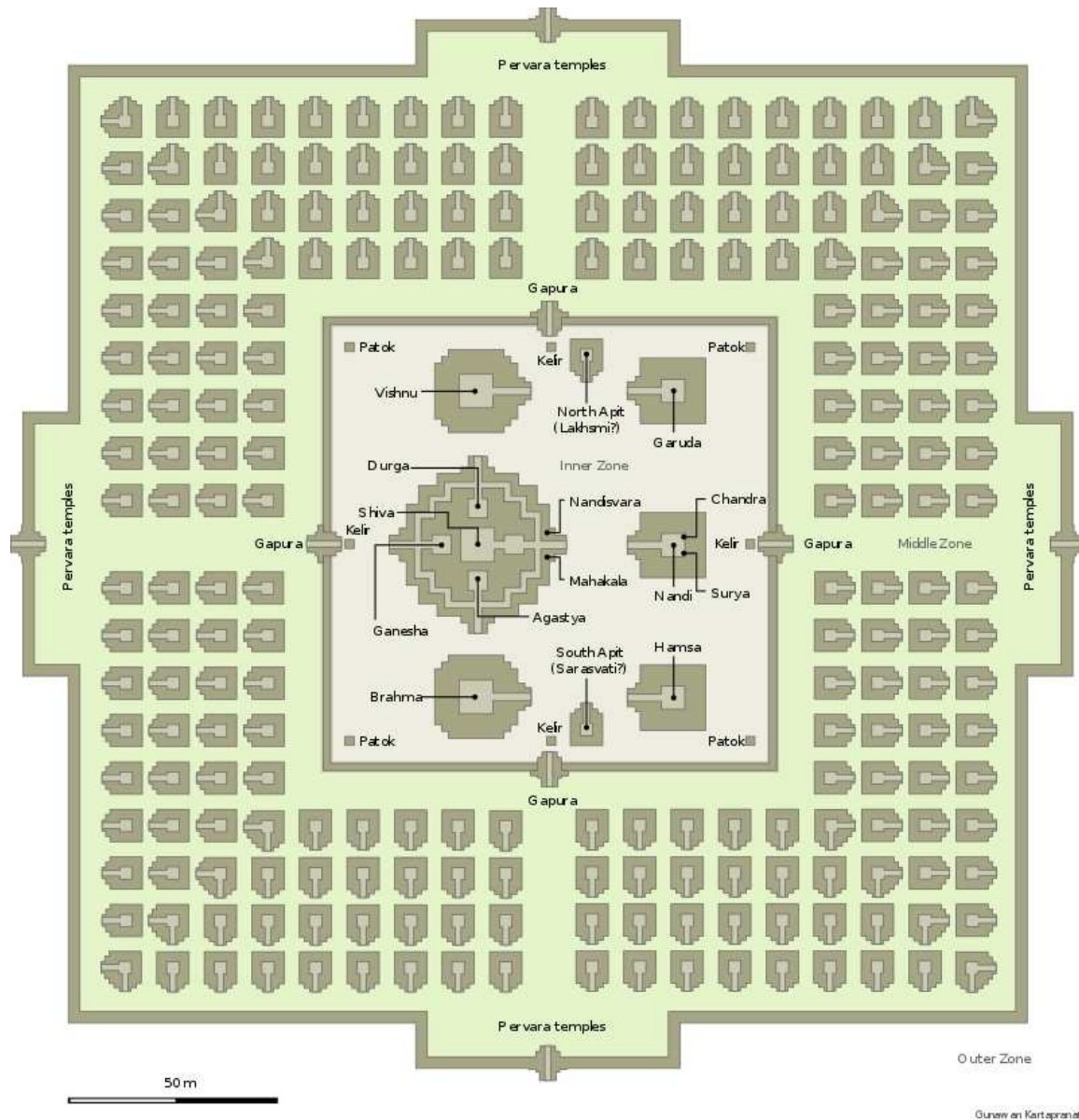
Criterion (i): Prambanan Temple Compounds presents the grandiose culture of Siva art as a masterpiece of the classical period in Indonesia, and the region.

Criterion (iv): The property is an outstanding religious complex, characteristic of Siva expression of the 10th century.

Integrity

Prambanan Temple Compounds comprises of two groups of buildings which includes Loro Jonggrang, Sewu complexes, Lumbung, Bubrah and Asu (Gana). The 508 stone temples of various shapes and sizes are either in a complete and preserved condition or have been retained as ruins. This site includes all elements necessary to express its exceptional significance and is well maintained. There are no threats of development or neglect; however the area is prone to natural threats such as earthquakes and volcanic eruptions.





Yuri Hadi

Authenticity

Prambanan Temple Compounds contains the original structures that were built in the 9th century AD. The temples collapsed due to earthquake, volcanic eruption and a shift of political power in the early 11th century, and they were rediscovered in the 17th century. These compounds have never been displaced or changed. Restoration works have been conducted since 1918, both in original traditional method of interlocking stone and modern methods using concrete to strengthen the temple structure. Even though extensive restoration works have been done in the past and as recently as after the 2006 earthquake, great care has been taken to retain the authenticity of the structures.

Protection and management requirements

The property has been designated as a National Cultural Property in 1998 and the national law issued in 2010 also supports the protection and conservation of the property. Management of Prambanan Temple Compounds is accommodated in the Presidential Decree of 1992 that established the 77 ha that encompasses the property under central government ownership. This area is divided into two zones. The management of Zone 1 or the area within the boundary is conducted by the Ministry of Culture and Tourism under two different regional offices, namely the Archaeological Preservation Office of Yogyakarta and Central Java. The Borobudur, Prambanan and Ratu Boko Tourism Park Ltd. are responsible for Zone 2 which comprises the buffer zone. In order to implement standard operations for the safeguarding of the property, the government has established a regulation concerning national vital object area. All regulations have been well enforced and implemented.

In order to improve the management of the property, government issued the law in 2007 and government regulation of 2008 concerning national spatial planning which means that spatial planning in World Cultural Heritage area will be prioritized. Prambanan site has been established as one of the strategic national area which consists of Prambanan temple Compounds and others related temple remains. To ensure the long term safeguarding of the property, an integrated management and regulation that support preservation is needed.

The Action Plan of 2007 has been implemented with the involvement of the local community around the property. The welfare of the local community around the property that was affected by the earthquake of 27 May 2006, is now improving with the recovery of the usual economic activity and especially in the creative industry sector. The Siva temple has not been rehabilitated but research activities or technical studies of the Siva temple have been carried out in 2010 and 2011. The results have been discussed at national and international level with the conclusion that it is still necessary to study and research to determine the method of handling Siva Temple, including monitoring through seismograph study and crack meter periodically.

The Story of Roro Jonggrang.

(source : ^ Prambanan Temple Compounds – UNESCO World Heritage Centre)

<https://denmasgundul.wordpress.com/2012/04/02/prambanan-temple-and-the-story-of-ro-ro-jonggrang/>

Once upon a time there is a King named Prabu Baka. He is the king of Baka Kingdom. To expand his territory, he planned to attack Pengging Kingdom. Prabu Damarmoyo the King of Pengging sent his troops to prevent Prabu Baka expansion. During this war, so many people are suffer. Beside that, many soldier from both of side was dead. Finnaly to defeat the mighty Prabu Baka, Prabu Damarmoyo ordered his son, Prince Bandung Bandawasa to killed Prabu Baka.

Thanks to his power and skills, Prabu Baka was defeated and died in battle. Knowing his King was dead, Baka general, Patih Gupala retreat back to his kingdom. And Bandung Bandawasa pursue the general to his kingdom. When he arrives in Baka Kingdom he was surprised when he met Rara Jonggrang, Prabu Baka's daughter. He was fallin love with Rara Jonggrang because of her beauty.



Prambanan Temple (Sketch by Arkanhendra)

Finally, Prince Bandung Bandawasa wants Rara Jonggrang to marry him. But Rara Jonggrang said no. She doesn't want to marry a man who took his father's life. But, that doesn't make Prince Bandung Bandawasa give up. He persuades Rara Jonggrang firmly and patiently until Rara Jonggrang said yes. In the end, Rara Jonggrang decided to approve Bandung Bandawasa's proposal in two conditions. First, he must make a well for her, named Sumur Jalatunda (Jalatunda Well). And then Bandung Bandawasa must build 1000 temples in one night for her. Then she will marry him.

Bandung Bandawasa agreed with that. When he tries to make the well, Rara Jonggrang ordered Patih Gupala to bury Bandung Bandawasa. But because of his power he was saved. He was so mad because Rara Jonggrang deceived him. But with her beauty Rara Jonggrang succeeded in preventing Bandung Bandawasa from going mad. The first term was succeeded. And now, Bandung Bandawasa prepared to build 1000 temples for her.

He asked a help from the spirit creature with his power. From inside the earth, the jins, ghosts and many spirit creatures comes to help him. When Rara Jonggrang heard it, that Bandung bandawasa was almost done with his work, Rara Jonggrang feel worried about it. Then, she asked for her servant (dayang) and girls from villages to pound the rice and made a big fire camp in the east side palace.

Hearing the sound of people pounding the rice and a light from the east side which is from the fire camp, the spirit creature think that its already dawn yet. And they decided to run and hide. After knowing that its all because of Rara Jonggrang tricks to ruin his plan to marry her, he can't be patient again. In rage he cursed Rara Jonggrang become a stone statue, the most beautiful one. To fullfil his 999 temple that was finished. Rara Jonggrang means *the Slim Girl*. Know you can see it as the *Durga statue* in the north hall of the Prambanan main temple.

These temples are known locally as *candi* in Indonesian and Javanese languages. The temple compounds are located along Opak River valley within Prambanan Plain or Kewu Plain, an archaeologically rich area dotted with numerous Hindu-Buddhist temples dated from the 8th and 9th centuries CE, historically linked with the Mataram kingdom.^[2] The diversity and sophistication of the temple compounds and archaeological sites in this area are comparable to Angkor archaeological site in Cambodia.



History:

Statue of Shiva in the ruin of Prambanan main temple in 1895

The temple compounds date from the 8th to 9th century CE, linked with historic Mataram Kingdom that ruled Central Java during that period. Shailendras, the ruling family of the kingdom were known as the avid temple builders. Indeed some temples in the area, including Kalasan, Sari, and Sewu are credited to their second monarch King Panangrakan. Among these temple compounds, Sewu is the oldest, completed in 792 according to Manjusri inscription. Lumbung and Bubrah also dated from around the same period or

slightly later. Prambanan however, was the latest addition in the complex, finished and inaugurated in 856 during the reign of King Pikatan according to Shivagrha inscription.

After the move of the capital to eastern Java circa the 11th century, the temple was neglected. For centuries later, it fell into disrepair, buried under Mount Merapi volcanic debris and shaken by earthquakes. The temple collapsed in about 1600s due to a massive earthquake.^[3]

The temple was in ruins during its rediscovery back in early 19th century in the British Java period. In 1918, the Dutch colonial government began the reconstruction of the compound, and proper restoration took place in 1930 with modest result due to loss of the temple stones. Only a number of the smaller *pervara* shrines of Prambanan and Sewu complex were reconstructed during the Dutch East Indies period prior to the Pacific War.

After the World War II, the reconstruction efforts continues by implementing the anastylosis method, which means the temple will be reconstructed if only at least 75 percent of the original stones remains. The reconstruction of the main Shiva temple in Prambanan complex was completed around 1953 and inaugurated by Indonesia's first president Sukarno. Brahma temple reconstruction was finished in 1987, while Vishnu temple was completed in 1991, both were inaugurated by Suharto.

In 1991, the temple compounds gained UNESCO World Heritage Site status.^[1] The temple compounds are located within Prambanan Tourism Park (Indonesian: *Taman Wisata Candi Prambanan*).^[4] Sewu main temple was completed in 1993, while Bubrah restoration was completed in 2017. Since the temple compound consists of hundreds of *pervara* temples or complementary smaller shrines that most are still in ruins, restoration efforts still continue to this day.



Temples and archaeological sites in Prambanan Plain

Prambanan Sewu are actually temple compounds arranged in the mandala layout, surrounded with hundreds of *pervara* (guardian complementary) temples. Originally, Prambanan consists of 240 structures, Sewu consists of 249 structures, while Lumbung temple consists of 17 structures. With combined numbers of over 500 temples, Prambanan Temple Compounds represents not only an architectural and cultural treasure, but also an example of religious harmony and peaceful cohabitation between faiths in Indonesia's past.

Sewu

Sewu or originally known as Manjusrigrha complex, with its four pairs of Dvarapala giant statues, is the largest Buddhist temple complex in Indonesia, and the second largest Buddhist temple after Borobudur. Archaeologists believe the original name for the temple compound to be *Manjusrigrha*, which means "the house of Manjusri", one of the main bodhisattva in Mahayana Buddhism belief.

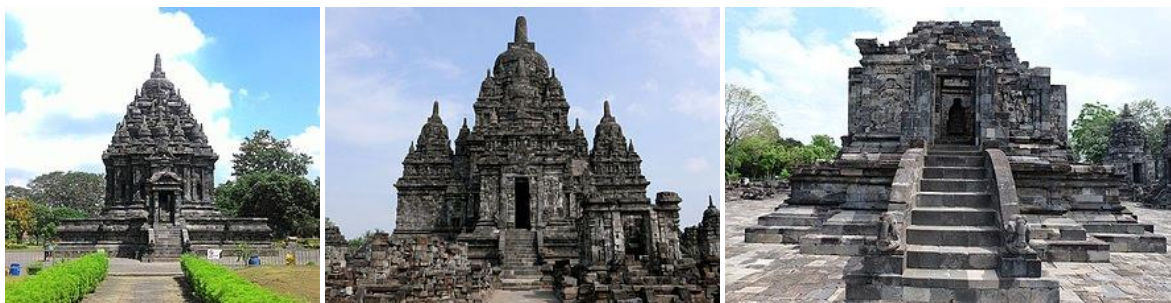
Bubrah

Bubrah is a 9th-century Buddhist temple located between Lumbung in the south and Sewu in the north. Experts believe that the temple was designed as a part of the greater Sewu temple compound mandala.

Lumbung

Candi Lumbung a 9th-century Buddhist temple compound located within the complex of Prambanan Temple Tourism Park, Central Java, Indonesia. The original name of this temple is unknown, however the local Javanese named the temple "candi lumbung", which means "rice barn temple" in Javanese language.

Prambanan temple compound



Sewu temple /Bubrah temple/ *Buddhist siotes on the Kewu Plain*/Lumbung temple

Outside of Prambanan Temple Tourism Park there are numerous temples and archaeological sites located just a few kilometres away, they are:

- **Plaosan.** Buddhist temple located a few kilometres east from Sewu temple compound. The temple probably dated from 9th century. Thought to have been built by a Hindu king for his Buddhist queen. Two main temples with reliefs of Bodhisattva and Tara. Also rows of slender stupas.
- **Ratu Boko.** Complex of fortified gates, bathing pools, and elevated walled stone enclosure, all located on top of the hill.
- **Sajiwan.** Buddhist temple decorated with reliefs concerning education. The base and staircase are decorated with animal fables from the Jatakas.
- **Banyunibo.** A Buddhist temple with unique design of roof.
- **Barong.** A Hindu temple complex with large stepped stone courtyard. Located on the slope of the hill.
- **Ijo.** A cluster of Hindu temple located near the top of Ijo hill. The main temple houses a large lingam and yoni.
- **Arca Bugisan.** Seven Buddha and bodhisattva statues, some collapsed, representing different poses and expressions.
- **Kalasan.** This 8th-century Buddhist temple is the oldest in the area. Built to house the image of Bodhisattvadevi Tara by King Panangkaran, ornamented with finely carved reliefs.
- **Sari.** Once a sanctuary for Buddhist monks. 8th century. Nine stupas at the top with two rooms beneath, each believed to be places for monks to meditate.
- **Sambisari.** 9th-century Hindu temple discovered in 1966, once buried 6.5 metres under volcanic ash. The main temple houses a linga and yoni, and the wall surround it displayed the images of Agastya, Durga, and Ganesha.
- **Kedulan.** Discovered in 1994 by sand diggers, 4 metres deep. Square base of main temple visible. Secondary temples not yet fully excavated.

It is said that both Angkor and Prambanan were created by the same builders – who could be the Hindus from India before and around 1st century to 5th century.; especially the skilled workers

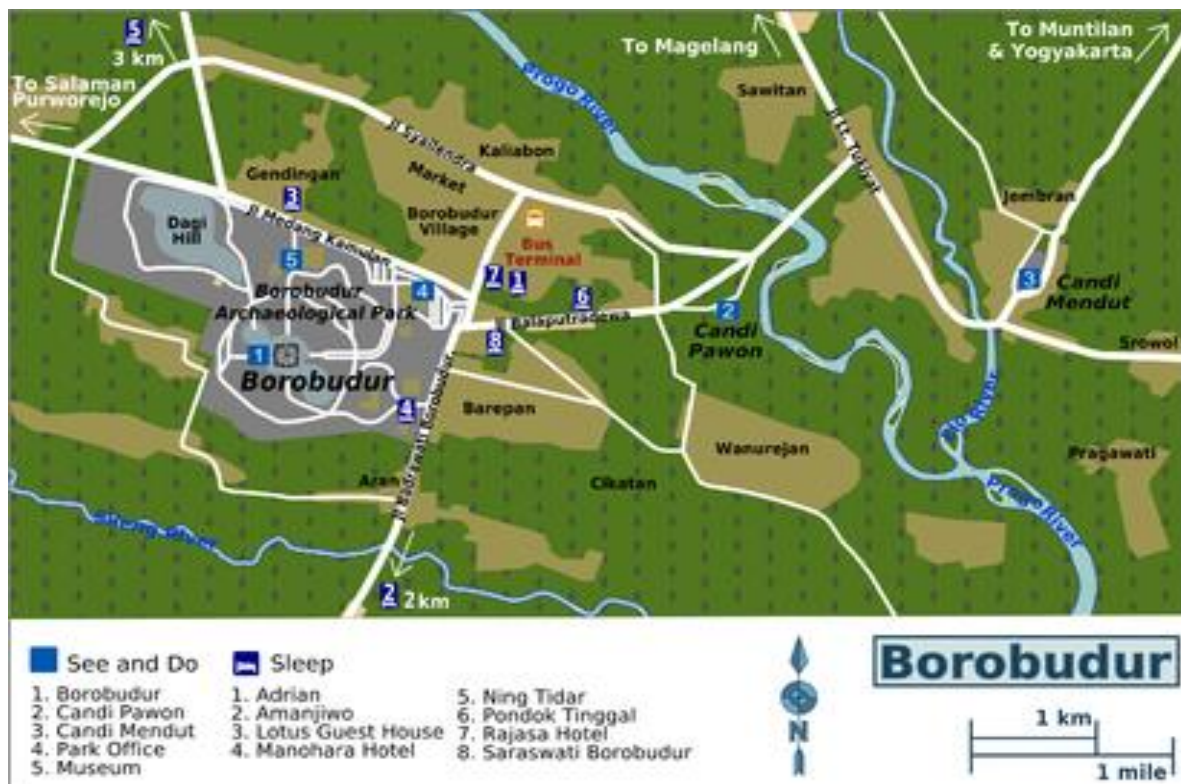
By 3rd Century, Hinduism already established itself in Indochina regions, bring knowledge, wisdom and science to the region which did not had such things before. One of the Science they brought includes the Science of Water management and temple building.

You see, unlike those Egyptians who build “great monuments” by staking large granite boulders like some ancient Tetris game, Hindus from India were experts in resource management. If one were to study the ancient infrastructure of Mohendaro Harappa, you will know that ancient Hindus were experts at “saving” natural resources for “rainy” days. And in those days, rainy days comes only during certain season.



Ancient Hindus were able to plan their cities in a way that they included artificial waterways, canals and artificial lakes to catch and keep water during their dry seasons.

Siem Reap (Cambodia) where Angkor Wat exist had the exact opposite problem to Mohendaro Harappa. It had too much water. It could have 6 months of dry season and another 6 months of very wet season where flooding is common. So when the Hindus came to this region, they decided to implement similar solutions as they did in India for generation before.





This picture shows the perfectly square canals in the picture above-they are NOT natural formation. They are man-made canals, built in form of square, with Angkor Wat in the middle like a giant Mandala (go search what a Mandala is).

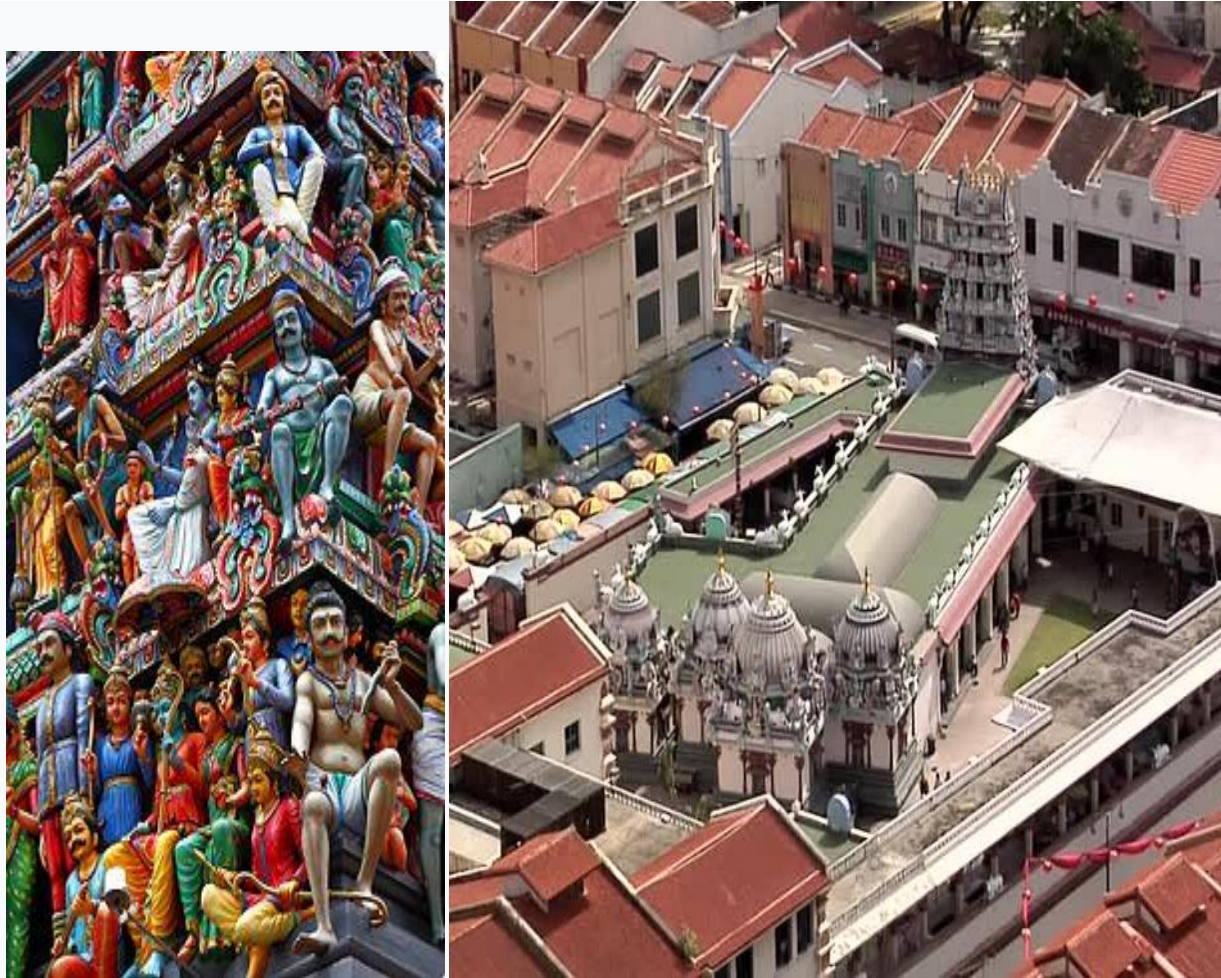
But one does not see such features in Borodur or Pramban. Because:

1. The design was not an Hindu mandala type
2. The design came later on 5 th century and beyond

Prambanan as a Mandala: In the research paper *Prambanan, a Hindu temple in Indonesia-general architectural and morphological analysis*,(academia.edu) myself and my co-author Srishti Dokras have dealt with a initial introduction to this magnificent temple .

The architecture of the Prambanan temple follows the typical Hindu architecture traditions based on Vastu Shastra. The temple design incorporated mandala temple plan arrangements and also the typical high towering spires of Hindu temples. Prambanan was originally named *Shivagrha* and dedicated to the god Shiva. The temple was designed to mimic Meru, the holy mountain, the abode of Hindu gods, and the home of Shiva. The whole temple complex is a model of the Hindu universe according to Hindu cosmology and the layers of Loka. Hindu temple architecture has many varieties of style, though the basic nature of the Hindu temple ("mandir") remains the same, with the essential feature an inner sanctum, the *garbha*

griha or womb-chamber, where the primary *murti* or the image of a deity is housed in a simple bare cell. Around this chamber there are often other structures and buildings, in the largest cases covering several acres. On the exterior, the garbhagriha is crowned by a tower-like *shikhara*, also called the *vimana* in the south. The shrine building often includes an ambulatory for *parikrama* (circumambulation), a *mandapa* congregation hall, and sometimes an *antarala* antechamber and porch between garbhagriha and mandapa. There may further mandapas or other buildings, connected or detached, in large temples, together with other small temples in the compound.^[3] There are examples of special dance pavilions (*Nata Mandir*), like in the Konark Sun Temple. The pool, temple tank (*Kunda*) is also part of the temple for ablutions.



Part of Gopuram at Sri Mariamman Temple, Singapore.



Gopurams

Essentially independent architectural structure is an element of the temple complex as *gopuram*, viz., gatehouse towers, usually ornate, often with colossal size, at the entrance of a Hindu temple of Southern India.

Just like Borobudur, Prambanan also recognizes the hierarchy of the temple zones, spanned from the less holy to the holiest realms. Each Hindu and Buddhist concept has its terms, but the concepts are essentially identical. Hindu cosmology is the description of the universe and its states of matter, cycles within time, physical structure, and effects on living entities according to Hindu texts. Time is infinite with a cyclic universe, where the current universe was preceded and will be followed by an infinite number of universes.

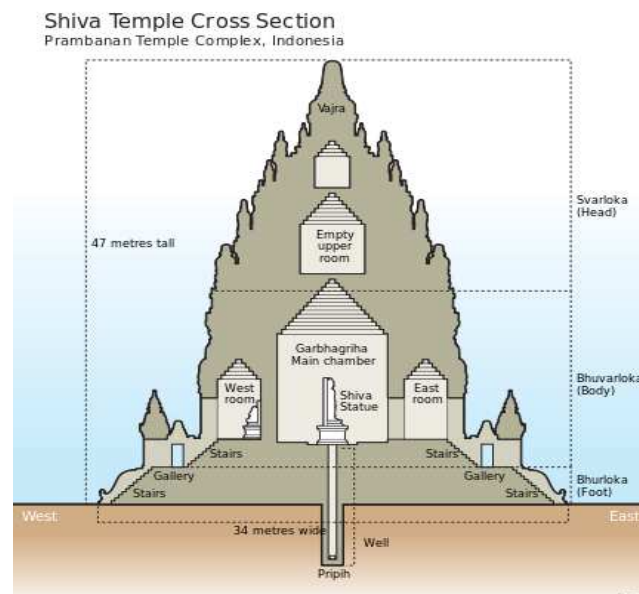
Each universe lasts for 4.32 billion years in a time period called a *Kalpa* or day of Brahma, where the universe is created at the start and destroyed at the end, only to be recreated at the start of the next *Kalpa*. A *Kalpa* is followed by an equal period of partial dissolution (*Pralaya* or night of Brahma), when Brahma takes rest from his creative duties and the universe remains in an unmanifest state. Further divisions of time are a *Manvantara*, each with *Chatur*

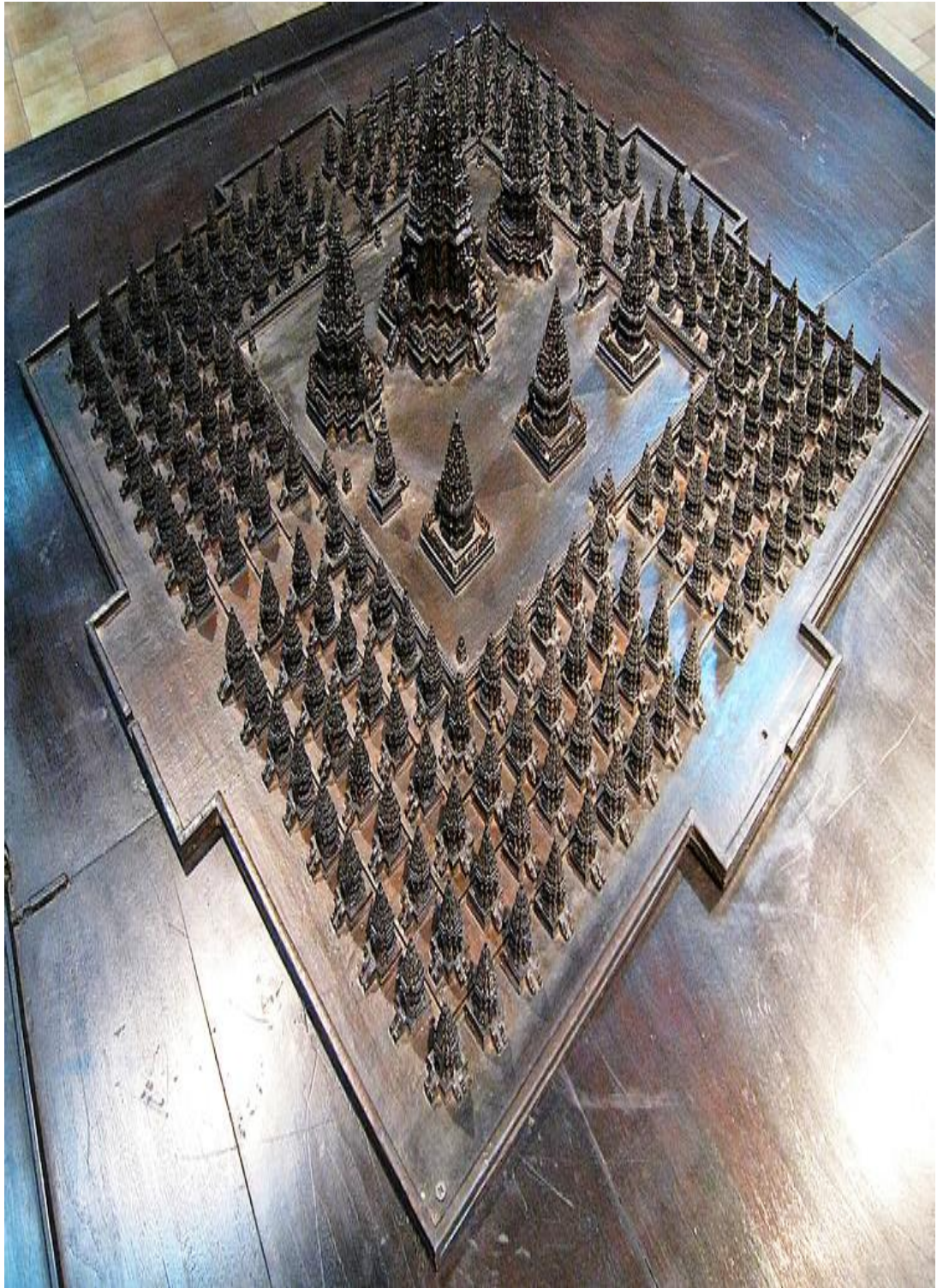
Yuga (a.k.a. *Maha Yuga*), each with four *yugas*: *Satya Yuga*, *Treta Yuga*, *Dvapara Yuga* and *Kali Yuga*

Either the compound site plan (horizontally) or the temple structure (vertically) consists of three zones:

- Bhurloka (in Buddhism: *Kāmadhātu*), the lowest realm of common mortals; humans, animals also demons. Where humans are still bound by their lust, desire and unholy way of life. The outer courtyard and the foot (base) part of each temple has symbolized the realm of *bhurloka*.
- Bhuvarloka (in Buddhism: *Rupadhatu*), the middle realm of holy people, occupied by rishis, ascetics, and lesser gods. People here begin to see the light of truth. The middle courtyard and the body of each temple symbolize the realm of *bhuvarloka*.
- Svarloka (in Buddhism: *Arupadhatu*), the highest and holiest realm, reserved for the gods. Also known as *svargaloka*. The inner courtyard and the roof of each temple symbolize the realm of *svarloka*. The roof of Prambanan temples are adorned and crowned with *ratna* (sanskrit: jewel), the shape of Prambanan *Ratna* took the altered form of vajra that represent diamonds. In ancient Java temple architecture, *Ratna* is the Hindu counterpart of the Buddhist *stupa*, and served as the temple's pinnacle. It also has more than 140 inner temples, along with 30 main ones.

During the restoration, a well which contains a *pripih* (stone casket) was discovered under the centre of the Shiva temple. The main temple has a well 5.75 m deep in which a stone casket was found on top a pile of charcoal, earth, and remains of burned animal bones. Sheets of gold leaves with the inscription Varuna (god of the sea) and Parvata (god of the mountains) were found here. The stone casket contained sheets of copper, charcoal, ashes, earth, 20 coins, jewels, glass, pieces of gold and silver leaves, seashells and 12 gold leaves (which were cut in the shapes of a turtle, Nāga serpent, padma, altar, and an egg).







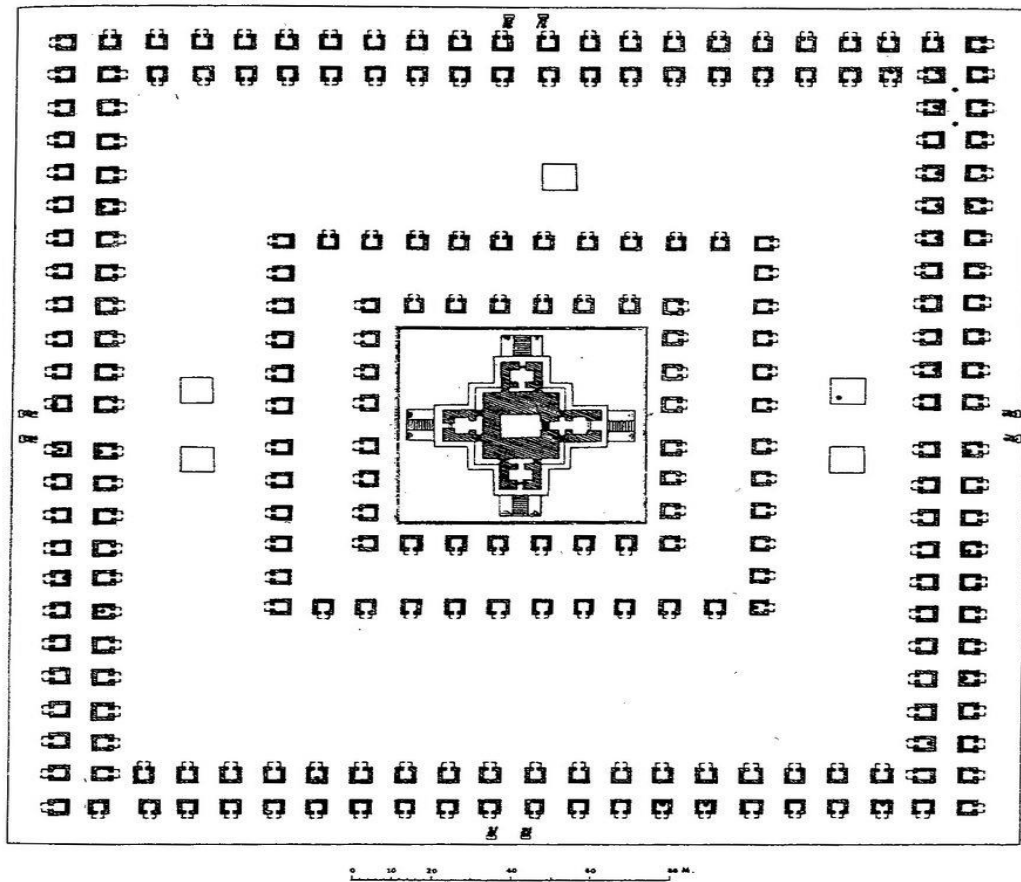
Prambanan Temple, Yogyakarta, Java



Prambanan Shiva Temple, Yogyakarta,

Dedicated to the *Trimurti*, the expression of God as the Creator (Brahma), the Preserver (Vishnu) and the Destroyer (Shiva). Its original name was *Shiva-grha* (the House of Shiva) or *Shiva-laya* (the Realm of Shiva) and its form was designed to symbolize Mt. Meru, the legendary holy mountain and abode of Hindu gods. The ground plan of Prambanan follows the Hindu system of *Vastu Shastra*, which literally translates as "science of architecture" and is laid out according to a *mandala*, or geometric pattern that represents a microcosm of the universe.

The temple complex consists of three zones, each of which is surrounded by a wall: an inner and most holy zone containing eight main temples and eight smaller shrines, each of which have been reconstructed; a middle zone containing 224 small *pervara* temples of which only two have been reconstructed; and an outer zone without temples, where the very large number of temple authorities and priests would have lived. The most prominent temple, dedicated to Shiva, rises to 154 feet (47 meters) and has four chambers in the cardinal directions. The eastern chamber contains a ten-foot statue of Shiva, the north chamber has a statue of Shiva's consort *Durga Mahisasuramardini* depicting Durga as the slayer of the Bull demon, the west chamber houses a statue of Shiva's son Ganesh, and the south is occupied by Shiva's teacher, the sage Agastya. The temple is adorned with panels of bas-relief sculptures telling the story of the Hindu epic the Ramayana and the Bhagavata Purana.



Ground plan of Prambanan Temple

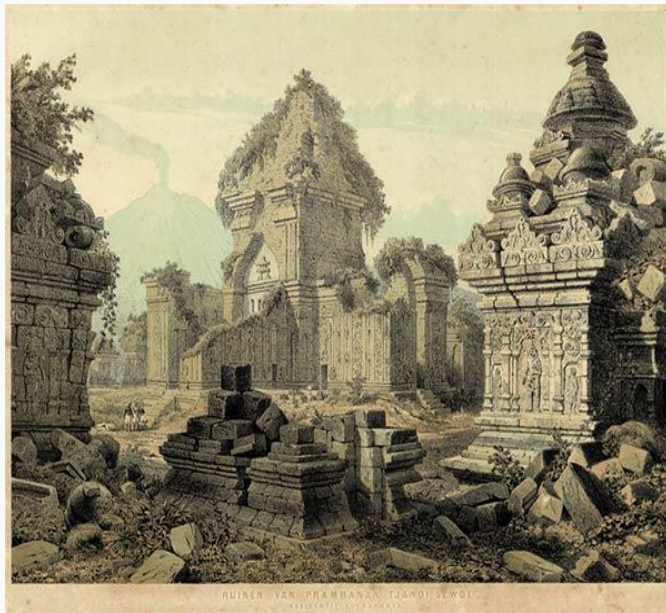
The temple was first built around 850 CE by Rakai Pikatan and expanded extensively by King Lokapala of the Sanjaya Dynasty. Historians suggest that the construction of Prambanan was probably meant to memorialize the return to power of the Hindu Sanjaya Dynasty in Central Java after almost a century of domination by the Buddhist Sailendra Dynasty. In the 930's, following state political turmoil and the volcanic eruption of nearby Mt. Merapi, the royal court was transferred to East Java by Mpu Sindok, who established the Isyana Dynasty. This marked the beginning of the decline of Prambanan. It was later abandoned, scores of trees grew amidst its soaring stone towers, and many temples collapsed during a major earthquake in the 16th century. Although the temple ceased to be an important center of worship and pilgrimage, the ruins were still recognizable and known to the local Javanese people.

Prambanan was rediscovered in 1733 by C.A. Lons, a Dutch explorer. The first efforts to reveal the full extent of the temple complex were done in 1885 and 1918, though looting became common with Dutch residents adorning their gardens with priceless statues and local people taking foundation stones to use as construction material. Archaeological restorations were conducted in 1937, 1978 and 1982, and continue to this day. Given the size of the temple complex, the Indonesian government decided to rebuild shrines only if at least 75% of their original masonry was available. Most of the smaller shrines are now visible only in their foundations, with no plans for their reconstruction. In 1991, the entire site was designated as a

Unesco World Heritage Site. As of 2009, the interior of most of the temples remains off-limits for safety reasons.



Aerial view of Prambanan Temple complex



Ruins of Prambanan Temple with volcanic Mt. Merapi in the distance, 1852 Unreconstructed pervara temple with Shiva temple

Martin Grey-https://sacredsites.com/asia/indonesia/prambanan_temple_yogyakarta_java.html



]The Good Cow from Prambanan EDU PILLU

CHAPTER XVII

THE MANDALIC GEOMETRY OF HINDU TEMPLE

Also featuring 2 excellent papers by the following authors:

Tanisha Dutta & Indaiinayak S. Adane – Professor, Department of Architecture and Planning, Visvesvaraya National Institute of Technology (VNIT), Nagpur, India

Hindu temples: Models of a fractal universe, Kirti Trivedi, The Visual Computer volume 5, pages 243–258 (1989) Cite this article

. ‘The human mind has first to construct forms, independently, before we can find them in things’. – Einstein



Introduction: The Hindu architecture was among the first ones that established a relationship between human figure and the system of proportion which was later studied by Leonardo da Vinci and Le Corbusier in modular system of measurement. It is based on the geometry of Vastupurashamandala in which the form of Purusha was made to fit the abstract idea of square as the highest geometric form. The basic form of Vastupurashamandala is the square which represents the earth and the circle represents the universe suggesting timelessness and infinity. The mandala is actually a square divided into smaller squares arranged in the form of a grid. Each

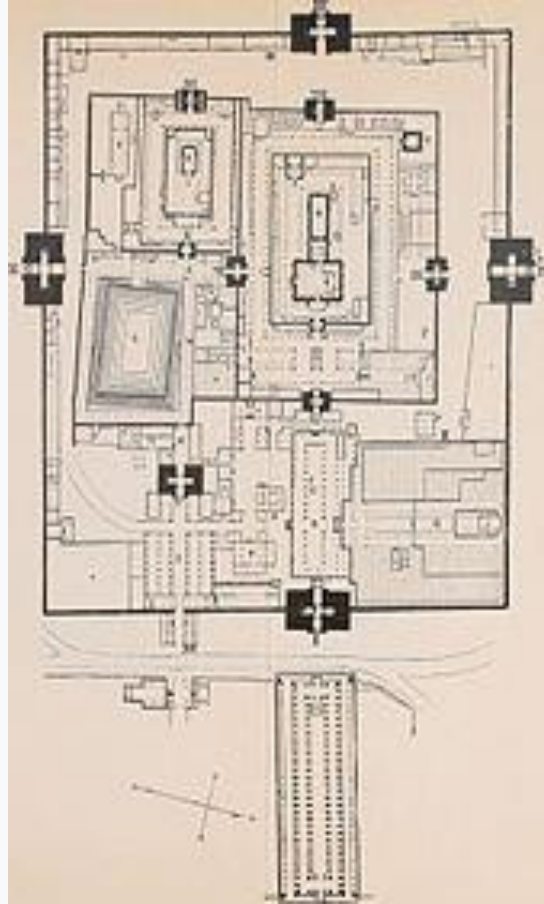
smaller square depicts the area of the respective Gods. The most commonly used mandala is the square subdivided into 64 and 81 squares. Thus, the Vastupurashamandala was the basis of the ground floor plan for all Hindu temples. The basic shape of the temple plan was : the outermost ring of square of the mandala from thickness of walls of main shrine, the central 4 squares was reserved for the main deity, the inner ring of 12 square form the walls of the garbhagriha and the next 16 to 28 forms the pradakshina patha. These simple divisions of square with permutation and combination became the base for the development of more complex temple compound

Mathematics and architecture are related, since, as with other arts, architects use mathematics for several reasons. Apart from the mathematics needed when engineering buildings, architects use geometry: to define the spatial form of a building; from the Pythagoreans of the sixth century BC onwards, to create forms considered harmonious, and thus to lay out buildings and their surroundings according to mathematical, aesthetic and sometimes religious principles; to decorate buildings with mathematical objects such as tessellations; and to meet environmental goals, such as to minimise wind speeds around the bases of tall buildings.

In ancient Egypt, ancient Greece, India, and the Islamic world, buildings including pyramids, temples, mosques, palaces and mausoleums were laid out with specific proportions for religious reasons. In Islamic architecture, geometric shapes and geometric tiling patterns are used to decorate buildings, both inside and outside. Some Hindu temples have a fractal-like structure where parts resemble the whole, conveying a message about the infinite in Hindu cosmology. In Chinese architecture, the tulou of Fujian province are circular, communal defensive structures. In the twenty-first century, mathematical ornamentation is again being used to cover public buildings.

In Renaissance architecture, symmetry and proportion were deliberately emphasized by architects such as Leon Battista Alberti, Sebastiano Serlio and Andrea Palladio, influenced by Vitruvius's *De architectura* from ancient Rome and the arithmetic of the Pythagoreans from ancient Greece. At the end of the nineteenth century, Vladimir Shukhov in Russia and Antoni Gaudí in Barcelona pioneered the use of hyperboloid structures; in the Sagrada Família, Gaudí also incorporated hyperbolic paraboloids, tessellations, catenary arches, catenoids, helicoids, and ruled surfaces. In the twentieth century, styles such as modern architecture and Deconstructivism explored different geometries to achieve desired effects. Minimal surfaces have been exploited in tent-like roof coverings as at Denver International Airport, while Richard Buckminster Fuller pioneered the use of the strong thin-shell structures known as geodesic domes.

Vaastu Shastra, the ancient Indian canons of architecture and town planning, employs symmetrical drawings called mandalas. Complex calculations are used to arrive at the dimensions of a building and its components. The designs are intended to integrate architecture with nature, the relative functions of various parts of the structure, and ancient beliefs utilizing geometric patterns (yantra), symmetry and directional alignments. However, early builders may have come upon mathematical proportions by accident. The mathematician Georges Ifrah notes that simple "tricks" with string and stakes can be used to lay out geometric shapes, such as ellipses and right angles.



Plan of Meenakshi Amman Temple, Madurai, from 7th century onwards. The four gateways (numbered I-IV) are tall gopurams.

The mathematics of fractals has been used to show that the reason why existing buildings have universal appeal and are visually satisfying is because they provide the viewer with a sense of scale at different viewing distances. For example, in the tall gopuram gatehouses of Hindu temples such as the Virupaksha Temple at Hampi built in the seventh century, and others such as the Kandariya Mahadev Temple at Khajuraho, the parts and the whole have the same character, with fractal dimension in the range 1.7 to 1.8. The cluster of smaller towers (*shikhara*, lit. 'mountain') about the tallest, central, tower which represents the holy Mount Kailash, abode of Lord Shiva, depicts the endless repetition of universes in Hindu cosmology.^{[2][60]} The religious studies scholar William J. Jackson observed of the pattern of towers grouped among smaller towers, themselves grouped among still smaller towers, that:

The ideal form gracefully artficed suggests the infinite rising levels of existence and consciousness, expanding sizes rising toward transcendence above, and at the same time housing the sacred deep within.

The Meenakshi Amman Temple is a large complex with multiple shrines, with the streets of Madurai laid out concentrically around it according to the shastras. The four gateways are tall towers (gopurams) with fractal-like repetitive structure as at Hampi. The enclosures around each shrine are rectangular and surrounded by high stone walls.

Geometry (from the Ancient Greek: γεωμετρία; *geo-* "earth", *-metron* "measurement") is, with arithmetic, one of the oldest branches of mathematics. It is concerned with properties of space that are related with distance, shape, size, and relative position of figures.^[1] A mathematician who works in the field of geometry is called a geometer.

Until the 19th century, geometry was exclusively devoted to Euclidean geometry, which includes the notions of point, line, plane, distance, angle, surface, and curve, as fundamental concepts.^[2]

During the 19th century several discoveries enlarged dramatically the scope of geometry. One of the oldest such discoveries is Gauss' Theorema Egregium (remarkable theorem) that asserts roughly that the Gaussian curvature of a surface is independent from any specific embedding in an Euclidean space. This implies that surfaces can be studied *intrinsically*, that is as stand alone spaces, and has been expanded into the theory of manifolds and Riemannian geometry.

Later in the 19th century, it appeared that geometries without the parallel postulate (non-Euclidean geometries) can be developed without introducing any contradiction. The geometry that underlies general relativity is a famous application of non-Euclidean geometry.

Since then, the scope of geometry has been greatly expanded, and the field has been split in many subfields that depend on the underlying methods—differential geometry, algebraic geometry, computational geometry, algebraic topology, discrete geometry (also known as *combinatorial geometry*) etc.—or on the properties of Euclidean spaces that are disregarded—projective geometry that consider only alignment of points but not distance and parallelism, affine geometry that omits the concept of angle and distance, finite geometry that that omits continuity, etc.

Often developed with the aim to model the physical world, geometry has applications to almost all sciences, and also to art, architecture, and other activities that are related to graphics. Geometry has also applications to areas of mathematics that are apparently unrelated. For example, methods of algebraic geometry are fundamental for Wiles's proof of Fermat's Last Theorem, a problem that was stated in terms of elementary arithmetic, and remained unsolved for several centuries.

Architecture

Geometry has many applications in architecture. In fact, it has been said that geometry lies at the core of architectural design. Applications of geometry to architecture include the use of projective geometry to create forced perspective,^[144] the use of conic sections in constructing domes and similar objects, the use of tessellations,^[91] and the use of symmetry.^[91]

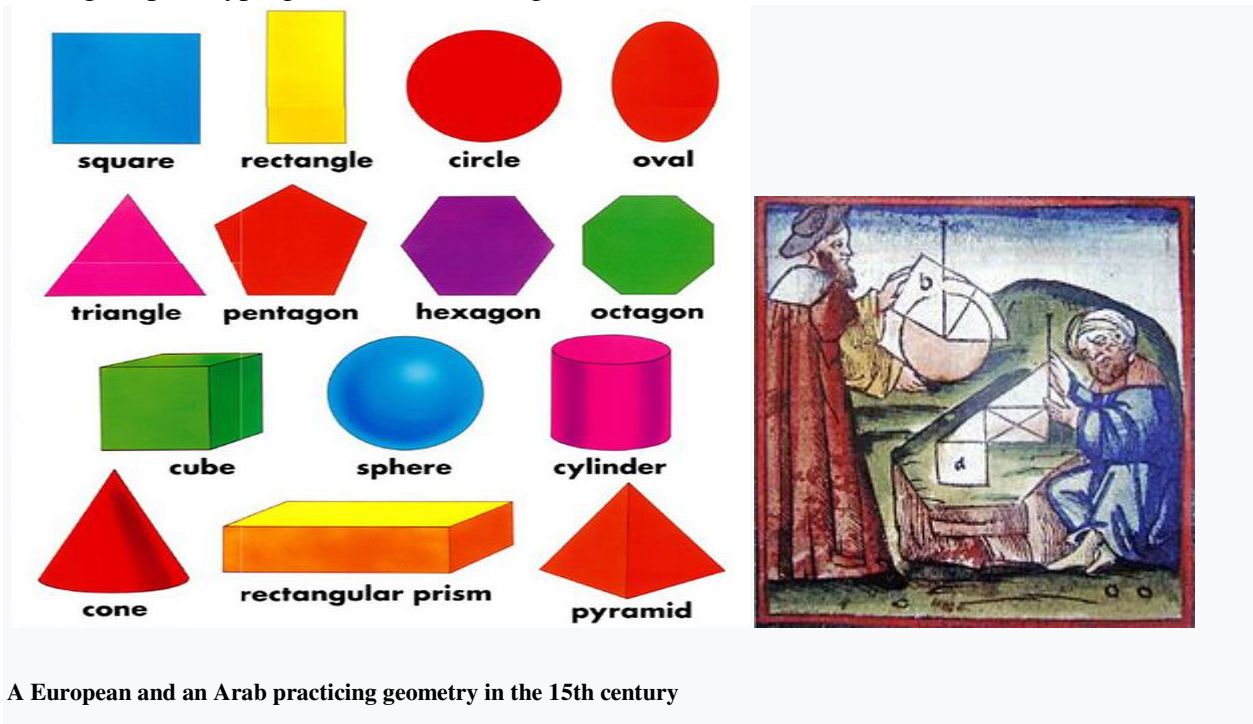
Architectural geometry is an area of research which combines applied geometry and architecture, which looks at the design, analysis and manufacture processes. It lies at the core of architectural design and strongly challenges contemporary practice, the so-called architectural practice of the digital age.

Architectural geometry is influenced by following fields: differential geometry, topology, fractal geometry, and cellular automata.

Topics include:

- freeform curves and surfaces creation

- developable surfaces
- discretisation
- generative design
- digital prototyping and manufacturing



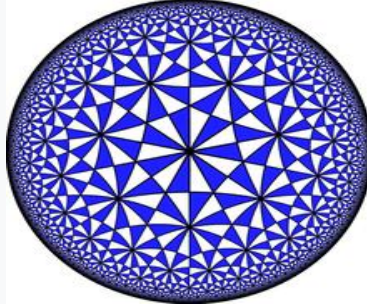
A European and an Arab practicing geometry in the 15th century

The earliest recorded beginnings of geometry can be traced to ancient Mesopotamia and Egypt in the 2nd millennium BC. Early geometry was a collection of empirically discovered principles concerning lengths, angles, areas, and volumes, which were developed to meet some practical need in surveying, construction, astronomy, and various crafts.

Indian mathematicians also made many important contributions in geometry. The *Satapatha Brahmana* (3rd century BC) contains rules for ritual geometric constructions that are similar to the *Sulba Sūtras*. According to (Hayashi 2005, p. 363), the *Śulba Sūtras* contain "the earliest extant verbal expression of the Pythagorean Theorem in the world, although it had already been known to the Old Babylonians. They contain lists of Pythagorean triples, which are particular cases of Diophantine equations. In the Bakhshali manuscript, there is a handful of geometric problems (including problems about volumes of irregular solids). The Bakhshali manuscript also "employs a decimal place value system with a dot for zero." Aryabhata's *Aryabhatiya* (499) includes the computation of areas and volumes. Brahmagupta wrote his astronomical work *Brāhma Sphuṭa Siddhānta* in 628. Chapter 12, containing 66 Sanskrit verses, was divided into two sections: "basic operations" (including cube roots, fractions, ratio and proportion, and barter) and "practical mathematics" (including mixture, mathematical series, plane figures, stacking bricks, sawing of timber, and piling of grain). In the latter section, he stated his famous theorem on the diagonals of a cyclic quadrilateral. Chapter 12 also included a formula for the area of a cyclic quadrilateral (a generalization of Heron's formula), as well as a complete description of rational triangles (*i.e.* triangles with rational sides and rational areas).

The following are some of the most important concepts in geometry.

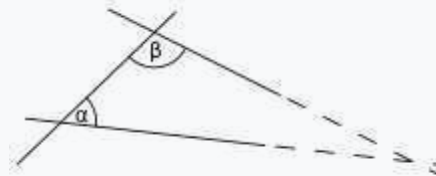
Symmetry



A tiling of the hyperbolic plane

The theme of symmetry in geometry is nearly as old as the science of geometry itself.^[76] Symmetric shapes such as the circle, regular polygons and platonic solids held deep significance for many ancient philosophers^[77] and were investigated in detail before the time of Euclid.^[40] Symmetric patterns occur in nature and were artistically rendered in a multitude of forms, including the graphics of da Vinci, M.C. Escher, and others. A different type of symmetry is the principle of duality in projective geometry, among other fields. This meta-phenomenon can roughly be described as follows: in any theorem, exchange *point* with *plane*, *join* with *meet*, *lies in* with *contains*, and the result is an equally true theorem. A similar and closely related form of duality exists between a vector space and its dual space.

Axioms



An illustration of Euclid's parallel postulate

Euclid took an abstract approach to geometry in his *Elements*, one of the most influential books ever written. Euclid introduced certain axioms, or postulates, expressing primary or self-evident properties of points, lines, and planes. He proceeded to rigorously deduce other properties by mathematical reasoning. The characteristic feature of Euclid's approach to geometry was its rigor, and it has come to be known as *axiomatic* or *synthetic* geometry.

Points

Points are considered fundamental objects in Euclidean geometry. They have been defined in a variety of ways, including Euclid's definition as 'that which has no part' and through the use of algebra or nested sets.^[45] In many areas of geometry, such as analytic geometry, differential geometry, and topology, all objects are considered to be built up from points. However, there has been some study of geometry without reference to points.

Lines

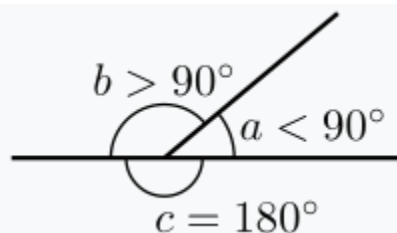
In analytic geometry, a line in the plane is often defined as the set of points whose coordinates satisfy a given linear equation, but in a more abstract setting, such as incidence geometry, a line may be an independent object, distinct from the set of points which lie on it. In differential geometry, a geodesic is a generalization of the notion of a line to curved spaces.

Planes

A plane is a flat, two-dimensional surface that extends infinitely far. Planes are used in every area of geometry. For instance, planes can be studied as a topological surface without reference to distances or angles; it can be studied as an affine space, where collinearity and ratios can be studied but not distances; it can be studied as the complex plane using techniques of complex analysis; and so on.

Angles

angle is the inclination to each other, in a plane, of two lines which meet each other, and do not lie straight with respect to each other. In modern terms, an angle is the figure formed by two rays, called the *sides* of the angle, sharing a common endpoint, called the *vertex* of the angle.



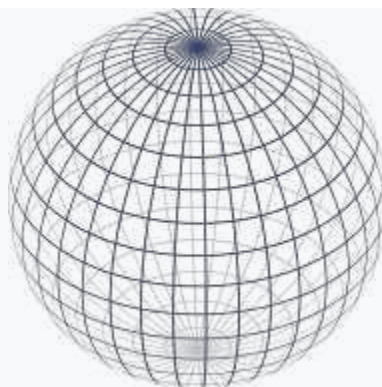
Acute (a), obtuse (b), and straight (c) angles. The acute and obtuse angles are also known as oblique angles.

In Euclidean geometry, angles are used to study polygons and triangles, as well as forming

A curve is a 1-dimensional object that may be straight (like a line) or not; curves in 2-dimensional space are called plane curves and those in 3-dimensional space are called space curves.

In topology, a curve is defined by a function from an interval of the real numbers to another space. In differential geometry, the same definition is used, but the defining function is required to be differentiable. Algebraic geometry studies algebraic curves, which are defined as algebraic varieties of dimension one.

Surfaces



A sphere is a surface that can be defined parametrically

(by $x = r \sin \theta \cos \varphi$, $y = r \sin \theta \sin \varphi$, $z = r \cos \theta$) or implicitly (by $x^2 + y^2 + z^2 - r^2 = 0$.)

A surface is a two-dimensional object, such as a sphere or paraboloid. In differential geometry and topology, surfaces are described by two-dimensional 'patches' (or neighborhoods) that are assembled by diffeomorphisms or homeomorphisms, respectively. In algebraic geometry, surfaces are described by polynomial equations.

Manifolds

A manifold is a generalization of the concepts of curve and surface. In topology, a manifold is a topological space where every point has a neighborhood that is homeomorphic to Euclidean space. In differential geometry, a differentiable manifold is a space where each neighborhood is diffeomorphic to Euclidean space.

Manifolds are used extensively in physics, including in general relativity and string theory.^[61]

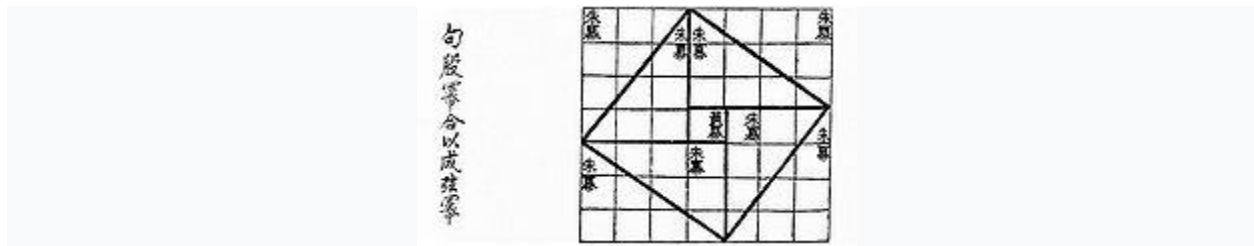
Length, area, and volume

Length, area, and volume describe the size or extent of an object in one dimension, two dimension, and three dimensions respectively.

In Euclidean geometry and analytic geometry, the length of a line segment can often be calculated by the Pythagorean theorem.

Area and volume can be defined as fundamental quantities separate from length, or they can be described and calculated in terms of lengths in a plane or 3-dimensional space. Mathematicians have found many explicit formulas for area and formulas for volume of various geometric objects. In calculus, area and volume can be defined in terms of integrals, such as the Riemann integral or the Lebesgue integral.

Metrics and measures



Visual checking of the Pythagorean theorem for the (3, 4, 5) triangle as in the Zhoubi Suanjing 500–200 BC. The Pythagorean theorem is a consequence of the Euclidean metric.

The concept of length or distance can be generalized, leading to the idea of metrics.^[66] For instance, the Euclidean metric measures the distance between points in the Euclidean plane, while the hyperbolic metric measures the distance in the hyperbolic plane. Other important examples of metrics include the Lorentz metric of special relativity and the semi-Riemannian metrics of general relativity

In a different direction, the concepts of length, area and volume are extended by measure theory, which studies methods of assigning a size or *measure* to sets, where the measures follow rules similar to those of classical area and volume.

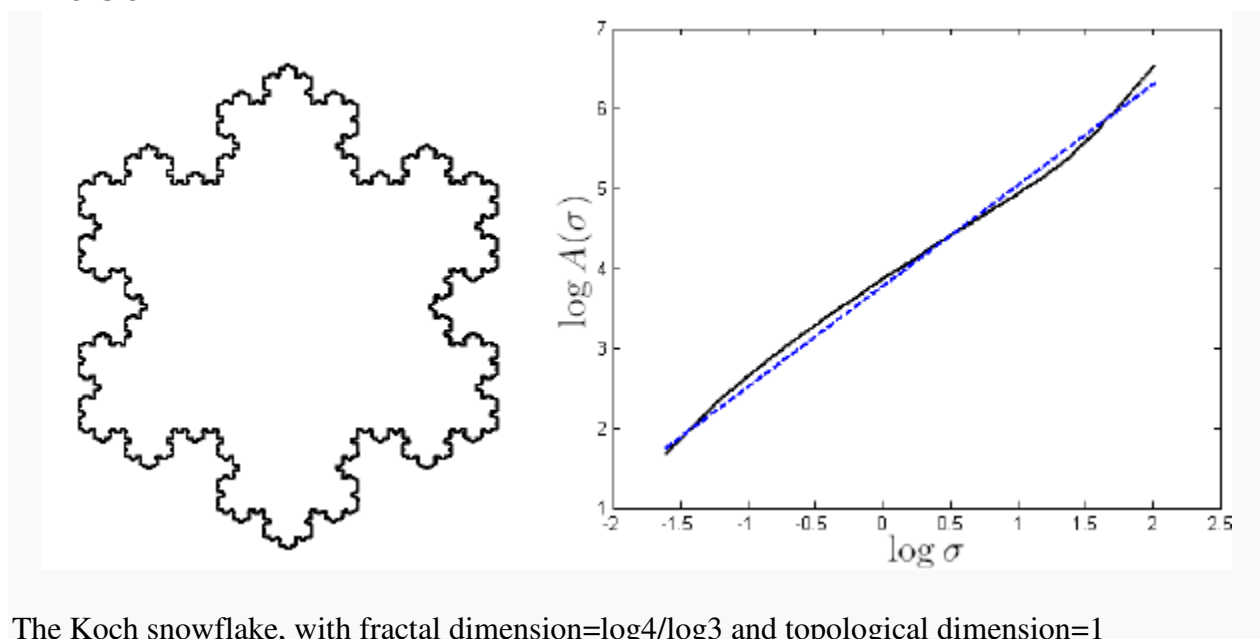
Congruence and similarity

Congruence and similarity are concepts that describe when two shapes have similar characteristics. In Euclidean geometry, similarity is used to describe objects that have the same shape, while congruence is used to describe objects that are the same in both size and shape. Congruence and similarity are generalized in transformation geometry, which studies the properties of geometric objects that are preserved by different kinds of transformations.

Compass and straightedge constructions

Classical geometers paid special attention to constructing geometric objects that had been described in some other way. Classically, the only instruments allowed in geometric constructions are the compass and straightedge. Also, every construction had to be complete in a finite number of steps. However, some problems turned out to be difficult or impossible to solve by these means alone, and ingenious constructions using parabolas and other curves, as well as mechanical devices, were found.

Dimension



The Koch snowflake, with fractal dimension= $\log 4/\log 3$ and topological dimension=1

Where the traditional geometry allowed dimensions 1 (a line), 2 (a plane) and 3 (our ambient world conceived of as three-dimensional space), mathematicians and physicists have used higher dimensions for nearly two centuries. One example of a mathematical use for higher dimensions is the configuration space of a physical system, which has a dimension equal to the system's degrees of freedom. For instance, the configuration of a screw can be described by five coordinates.

many fields, some of which are described below.

Art



Bou Inania Madrasa, Fes, Morocco, zellige mosaic tiles forming elaborate geometric tessellations

Mathematics and art are related in a variety of ways. For instance, the theory of perspective showed that there is more to geometry than just the metric properties of figures: perspective is the origin of projective geometry.

Artists have long used concepts of proportion in design. Vitruvius developed a complicated theory of *ideal proportions* for the human figure. These concepts have been used and adapted by artists from Michelangelo to modern comic book artists.

The golden ratio is a particular proportion that has had a controversial role in art. Often claimed to be the most aesthetically pleasing ratio of lengths, it is frequently stated to be incorporated into famous works of art, though the most reliable and unambiguous examples were made deliberately by artists aware of this legend.

Tilings, or tessellations, have been used in art throughout history. Islamic art makes frequent use of tessellations, as did the art of Escher. Escher's work also made use of hyperbolic geometry.

Cézanne advanced the theory that all images can be built up from the sphere, the cone, and the cylinder. This is still used in art theory today, although the exact list of shapes varies from author to author.

COSMOS: Hindu philosophy views the cosmos to be holonomic and self-similar in nature. According to ancient architectural tradition, Hindu temples are symbols of models of the cosmos and their form represents the cosmos symbolically.

The procedures and methods used in the construction of Hindu temples bear a striking resemblance to the procedures of computer graphics, including discretization, fractalization and extensive use of recursive procedures, including self-similar iteration. The instructions given in ancient Vastu shastras (texts on architecture) work like general programmes to generate various types of temples.

The paper is an attempt to draw attention to the similarities between the procedures and resulting forms in computer graphics and Hindu temple architecture and to explain the relationship that exists between the form of the temple and the concepts of Hindu philosophy. It is proposed that Hindu temples may be viewed as three-dimensional fractal models and that the use of fractal geometry procedures has a special symbolic meaning in the generation of the forms of Hindu temples

Traditionally, temples have been the most prominent religious institution in India and fractals form an integral part of those temples. A single gaze at a temple and you will find fractal-like spires (shikharas) or a tower surrounded by smaller towers, surrounded by still smaller towers, and so on, for eight or more levels. Each part of the facade is designed to look like a miniature reproduction of the whole.

The Hindu Temple as a Model of Fractal Cosmology – Forecasting Architecture with Recursive Instruction

Monday, 6 April 2015



Kandariya

Mahadev Temple [Madhya Pradesh] (source unknown)

The self-similar, cascading architectural forms found in Hindu temple architecture appear to have been pieced together by a hyper-industrious Minecraft after hooked on Hofstadter. Jagged waves of blocky ornamentation, rhythmically repeating, create diminishing echoes of the temple's form; tiny versions of itself repeating towards a proposed infinity. Baroque three-dimensional Cellular Automata. Cantor Set masonry. Malevich's Architectons upscaled and iterated to the n th degree, often smothered with a teeming mass of deities and denizens, each one competing for your retina.



Kandariya

Mahadev Temple [Madhya Pradesh] – RM Nunes

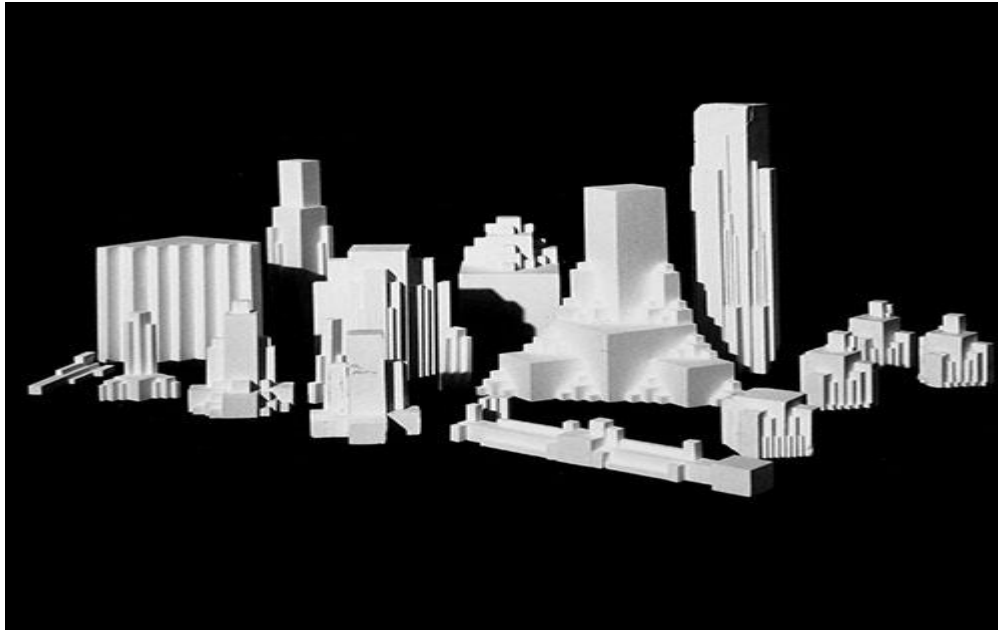
It's not just that these temples appear to be algorithmically generated, the ancient Vastu Sutra texts provide procedural rules or recipes for their design, layout and build (including the positions of ornaments). The texts transmit recursive programs, by verbal instruction, to masons so that according to Kirti Trivedi, the Hindu Temple becomes a model of a fractal Universe. A model which represents 'views of the cosmos to be holonomic and self-similar in nature'. The idea of fractal cosmology is no stranger to western academia. In 1987 the Italian physicist Luciano Pietronero argued, in his paper, that the Universe shows 'a definite fractal aspect over a fairly wide range of scale' based on correlations of galaxies and clusters, their spatial distribution and average mass density.

'According to Hindu philosophy the cosmos can be visualised to be contained in a microscopic capsule, with the help of the concept of subtle element called 'tammatras'. The whole cosmic principle replicates itself again and again in ever smaller scales' – Kirti Trivedi



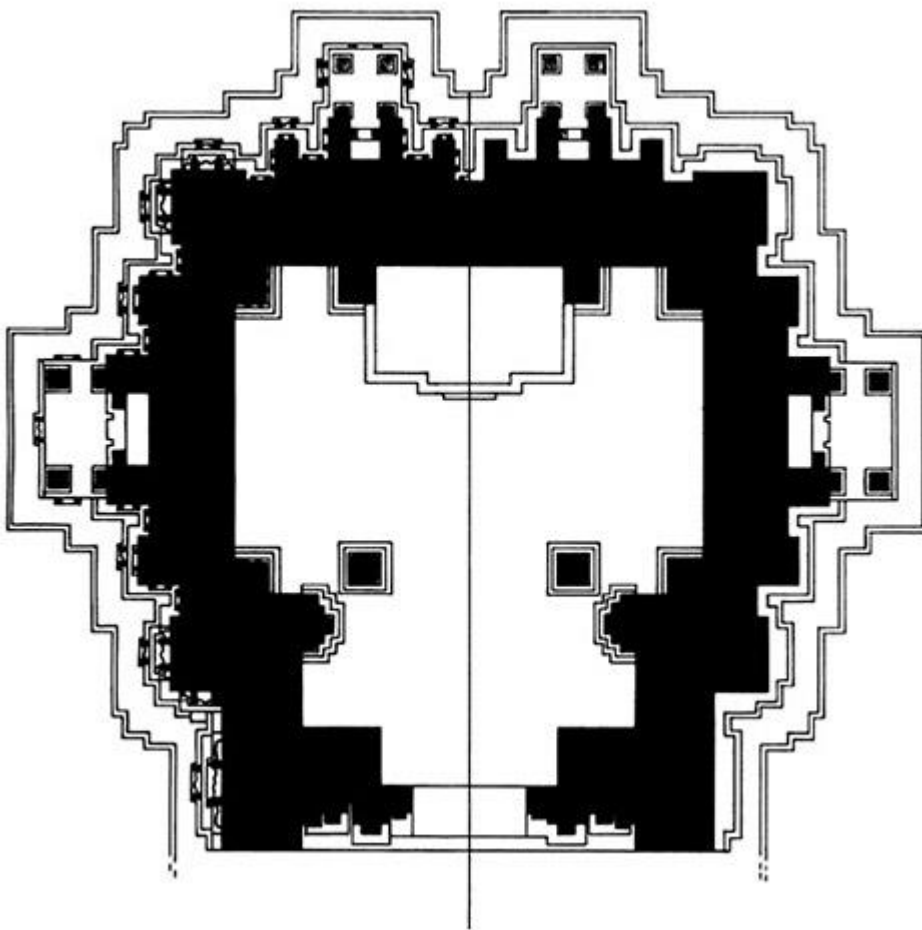
Yellamma

Temple [Karnataka] – Paul Prudence



Architecton

Series – Kazimir Malevich [1923]



*Temple Plan for
Barwasagar Temple [Uttar Pradesh] from Geometry Measure in India Temple Plans*

The initial temple plan is based on a grid form known as the Vastu-Purusha Mandala. Tellingly Trivedi remarks in his paper that the Vastu-Purusha Mandala is ‘not a blueprint for a temple, but a ‘forecast’, a marking of the potential within which a wide range of possibilities are implied’. The significance here, should not be underestimated. A ‘potential for possibilities’ within a predefined rule-set predisposes architecture to be governed by a degree of emergence. While emergence in parametric architecture arrived, recently, with computers and algorithms, India has been enacting emergent masonry for thousands of years thanks to the open rules of the Vastus Sutra.



Shweta Varahaswamy Temple [Karnataka] – Paul Prudence

Using a system of measurement called the ‘Tala’, dimensional relationships of proportions rather than exact structural specifications are defined. Initial decisions (why not call them algorithmic seeds?) combined with rule sets are used to define the final outcome of the building. The ‘Tala’ system is scale invariant, just like fractal mathematics, so that a building of any size can be created, and decorated without compromising the model of self containment. The temple, as a whole, is built by interweaving fractalization processes with repetition and superimposition. An example of a typical recursive instruction, verbalised, is:

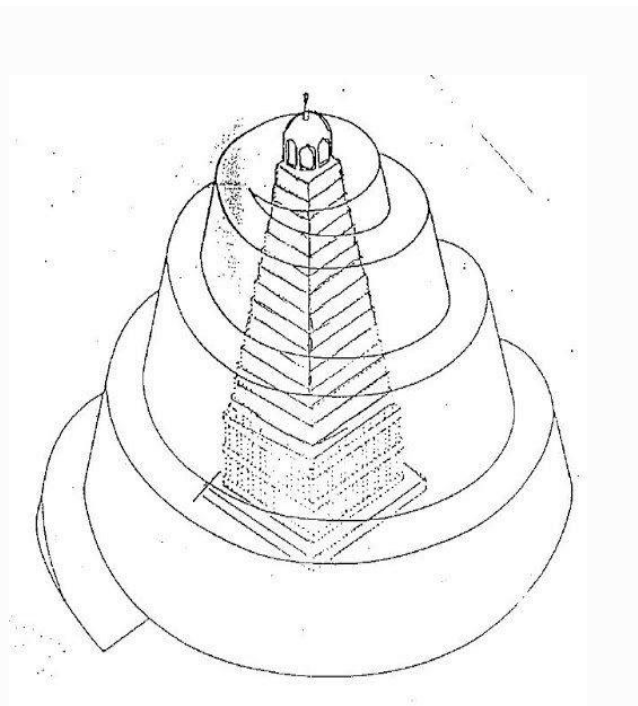
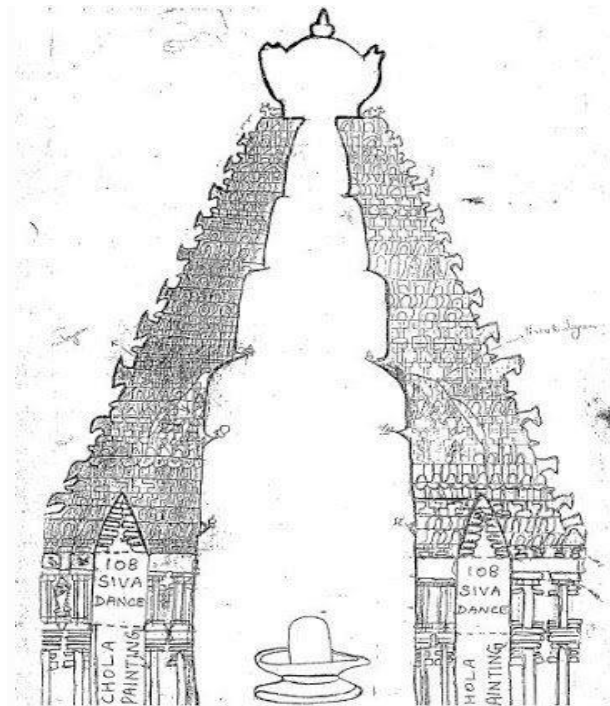
The layer of prahara (projection) will be above the chadya (eave of the roof). This is to be repeated again and again on the spire over the spire. A fraction of the prahara is to be constructed and again the spires are to be constructed. Each of the upper spires will be sprouted out with a measurement equal to half the size of the lower spire – Ksirarnava, 7.113



Sri Meenakshi Amman Temple [Tamil Nadu] –

Paul Prudence

The Kandariya Mahadev, in Madhya Pradesh, is one of the best examples of recursive temple architecture in India. The rising towers (Shikhara) of this structure are said to mimic the forms of mountains which are themselves self-similar. Shikhara literally translates to the word mountain.¹



) How did Cholas lift 80 tons of Granite to a 216-foot tower (Gopuram) at the Tanjore Brihadeeswarar Temple? RIGHT

Temples are of different sizes populated by sculptures and images of deities, animals, mythical beings and varied symbols to create a distinctive visual and spiritual experience. Not all Hindu temples are based on sacred geometry but many are. The temple is a fractal part of the whole of Hinduism, and that the use of fractal geometry has a special symbolic meaning in the forms of Hindu temples. Like the whole is reflected and celebrated in each part! The underlying relationship between Hindu cosmology and fractal theory is manifested in Hindu temple where

fractal geometry acts as the language. This paper has analyzed the Kandariya Mahadev temple at Khajuraho as the paradigm of Hindu temples with regard to fractal geometry and describes the syntheses of fractal features of the temple from the Hindu cosmology and philosophy.²

IMPORTANCE Traditionally, temples have been the most prominent religious institution in India and fractals form an integral part of those temples. A single gaze at a temple and you will find fractal-like spires (shikharas) or a tower surrounded by smaller towers, surrounded by still smaller towers, and so on, for eight or more levels. Each part of the facade is designed to look like a miniature reproduction of the whole.

IMPORTANCE OF GEOMETRY IN HINDU TEMPLES In Hindu temple architecture, geometry plays a vital and enigmatic role. Geometry of a plan starts with a line, forming an angle, evolving a triangle, then a square and distinctively a circle and so on, ultimately deriving complex forms. The occurrence of complexity, results into self similarity and further leads into the occurrence of fractal geometry. Geometry is a disciplined field and the fractal follows it • Both of them have definite paths • The role of fractal theory in basic geometry is shown

A Hindu temple has a Shikhara (Vimana or Spire) that rises symmetrically above the central core of the temple. These spires come in many designs and shapes, but they all have mathematical precision and geometric symbolism. One of the common principles found in Hindu temple spires is circles and turning- squares theme (left), and a concentric layering design (right) that flows from one to the other as it rises towards the sky.

GRID PLANNING The 8x8 (64) grid Manduka Hindu Temple Floor Plan, according to Vastupurusamandala. The 64 grid is the most sacred and common Hindu temple template. The bright saffron center, where diagonals intersect above, represents the Purusha of Hindu philosophy.

Vastupurashamandala is the square which represents the Earth and represents the universe suggesting timelessness and infinity The mandala is actually the square divided into smaller squares arranged in the form of a grid. Each smaller square depicts the area of the respective Gods. The most commonly used mandala is the square subdivided into 64 and 81 squares. A Hindu temple design follows a geometrical design called vastu- purusha-mandala. The name is a composite Sanskrit word with three of the most important components of the plan. Mandala means circle, Purusha is universal essence at the core of Hindu tradition, i.e energy, power, soul. while Vastu means the dwelling structure. The design lays out a Hindu temple in a symmetrical, self-repeating structure derived from central beliefs, myths, cardinality and mathematical principles. Beginning with humble caves and squat flat-roofed temples, Hindu temple architecture, then, evolved over the centuries and, despite some regional variation, arrived at a standard arrangement which involved a huge walled complex with massive decorative gateways giving entrance to a sacred space of lesser shrines dominated by the main temple and its monumental series of towers followed by geometry.

Since Hindu philosophy views the cosmos to be holonomic and self-similar in nature – each fragment of the cosmos is believed to be whole in itself – temples are designed and constructed as models of the cosmos.

George Michell, author of 'The Hindu Temple' explained, "The architecture of the Hindu temple symbolically represents the quest for moksha— ultimate spiritual liberation, the realization of oneness by setting out to dissolve the boundaries between man and the divine.

For this purpose certain notions are associated with the very forms and materials of the building. Paramount is the identification of the divinity with the fabric of the temple, or, from another point of view, the identification of the form of the universe [for example the cosmic mountain] with that of the temple. Temples are of different sizes populated by sculptures and images of deities, animals, mythical beings and varied symbols to create a distinctive visual and spiritual experience. Not all Hindu temples are based on sacred geometry but many are. The temple is a fractal part of the whole of Hinduism, and that the use of fractal geometry has a special symbolic meaning in the forms of Hindu temples. Like the whole is reflected and celebrated in each part! Such an identification is achieved through the form and meaning of those architectural elements that are considered fundamental to the temple."

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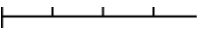
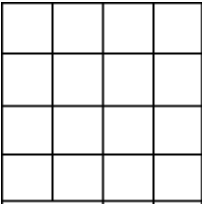
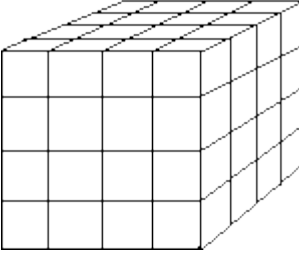
The paper is an attempt to draw attention to the similarities between the procedures and resulting forms in computer graphics and Hindu temple architecture and to explain the relationship that exists between the form of the temple and the concepts of Hindu philosophy. It is proposed that Hindu temples may be viewed as three-dimensional fractal models and that the use of fractal geometry procedures has a special symbolic meaning in the generation of the forms of Hindu temples.

Mathematical Interpretation of Fractal Dimension

The concept of "fractal dimension" is attributed to a 20th century mathematician, Benoit Mandelbrot. His fractal theory was developed in order to try to more precisely quantify the immense complexity of nature in relatively simple equations. His favorite example of such complexity was the craggy coast of Britain which, when seen from far above, looks somewhat wrinkled and convoluted. Yet as an observer gets closer and closer to the shore, the complexity of the coastline increases; smooth lines become jagged, and more jagged and complex until the observer is so close that he is observing the minute variation in the positions of each individual grain of sand along the shore. Moreover, we can imagine this observer measuring the length of the coastline with increasingly smaller rulers. As he takes account of the added

complexity as he measures with increasingly precise resolution, his approximation to the length of the coast of Britain keeps increasing. In fact, he could very well find that the length he is looking for diverges to infinity!

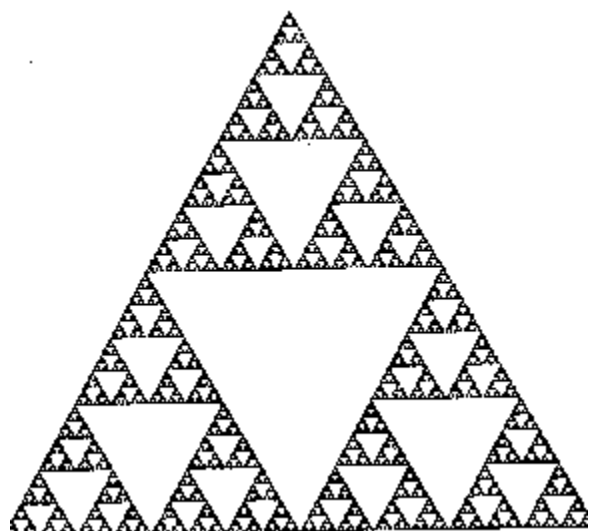
Yet it is obvious that this "infinitely long" coast of Britain only encapsulates a finite area, just as a circle drawn on the globe can contain all of Britain. In some way, we believe that the coast of Britain is more "substantial" than a simple circle, and perhaps more interesting than a simple 1-dimensional line which defines a circle's circumference. Fractal dimension was developed as a way to quantify this contradictory complexity.

Explanation	Image	Exponent gives the dimension
Notice that a line segment is <i>self-similar</i> . It can be separated into $4 = 4^1$ "miniature" pieces. Each is $1/4$ the size of the original. Each looks exactly like the original figure when magnified by a factor of 4 (magnification or scaling factor).		$4 = 4^1$ pieces
The square can be separated into miniature squares. If the smaller square is magnified (<i>scaled</i>) 4 times then it is identical to the larger square. However, we need $16 = 4^2$ pieces to make up the original square figure.		$16 = 4^2$ pieces
The cube can be separated into $64 = 4^3$ pieces. Again, these pieces need to be enlarged (<i>scaled</i>) by a factor of 4 to generate the larger square.		$64 = 4^3$ pieces

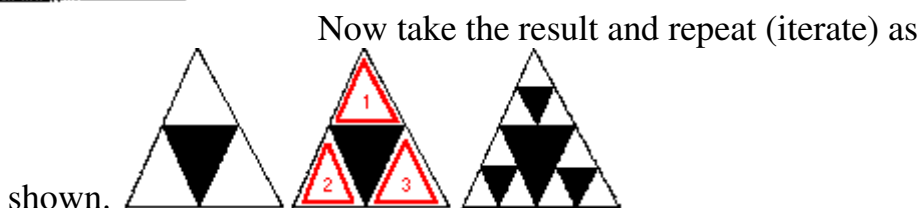
Therefore, N (the number of miniature pieces in the final figure) is equal to S (the scaling factor) raised to the power D (dimension). In the previous cases it is easy to find the dimension by simply reading the exponent. This simple concept can be generalized to measure non-integral dimensions of many fractals. One such fractal is the Van-Koch snowflake which you generated in class. Another common fractal is the

Sierpinsky Triangle discussed below, which is created by successively removing the middle section out of an equilateral triangle.

$$N = S^D$$



This is a picture of a Sierpinsky Triangle: To generate it, we begin with an equilateral triangle. Draw the lines connecting the midpoints of the three sides and remove the center triangle. Note that our new triangle contains 3 "miniature" triangles. Each side = 1/2 the length of a side of the original triangle., and each "miniature" triangle looks exactly like the original triangle when magnified by a factor of 2 (magnification or scaling factor).



Continuing this pattern results in the figure above. The *fractal* is the limiting case that results when the iterations are continued out to infinity. Notice that the lower left portion of the triangle is exactly the same as the entire triangle when magnified by a factor of two, and the lower-left portion of that triangle is the same as it's containing triangle, and so on. The Sierpinsky Triangle is *self-similar*.

But what is the dimension of the Sierpinsky Triangle? Notice the second triangle is composed of 3 miniature triangles exactly like the original. The smaller triangles could be scaled by 2 to produce the entire triangle ($S = 2$). The resulting figures consists of 3 separate identical miniature pieces. ($N = 3$).

What is D ? We simply take the logarithm of our above equation. Recalling that $N = S^D$,

$$\begin{array}{lcl} S^D & = & N \\ 2^D & = & 3 \end{array}$$

$$\begin{aligned}
 \log(2^D) &= \log(3) \\
 D \cdot \log(2) &= \log(3) \\
 D &= \log(3) / \log(2) \\
 D &= 1.585 \text{ (not an integer!)}
 \end{aligned}$$

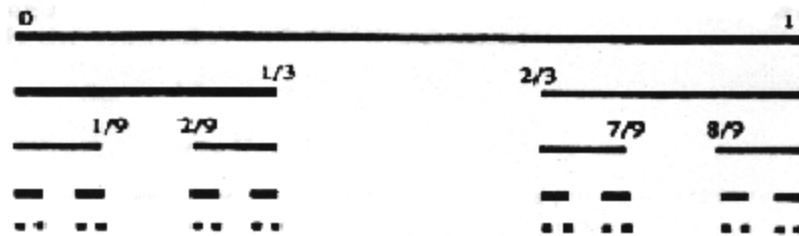
In fact, a trivial computation from the above equation yields

$$D = \log N / \log S.$$

This is the formula to use for computing the fractal dimension of any *strictly self-similar* fractals. The dimension is a measure of how completely these fractals embed themselves into normal Euclidean space.

Identifying Dimension

For the following figures, we have given N, S, and D.



1. Cantor Dust:

$$N=2, S=3, D=\log 2 / \log 3=0.6309$$



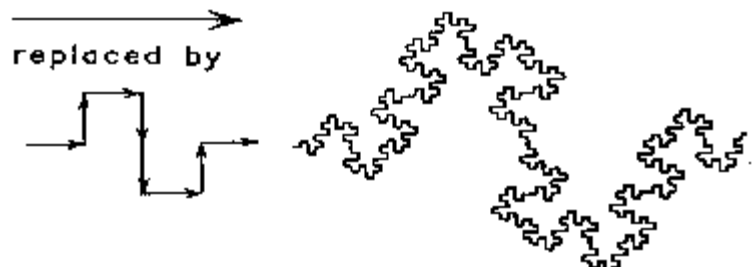
2. Box Fractal:

$$N=5, S=3, D=\log 5 / \log 3=1.4649$$



3. Koch Curve

$$N=4, S=3, D=\log 4 / \log 3=1.2618$$



4. Another one:

$$N=8, S=4, D=\log 8 / \log 4=1.5$$

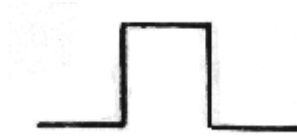
Just for fun,

Find the dimension of fractals generated in each of the following ways:
(answers will be given in recitation sometime)

Initiator

Generator

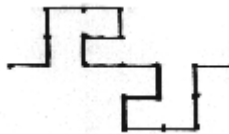
5.



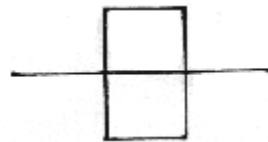
6.



7.

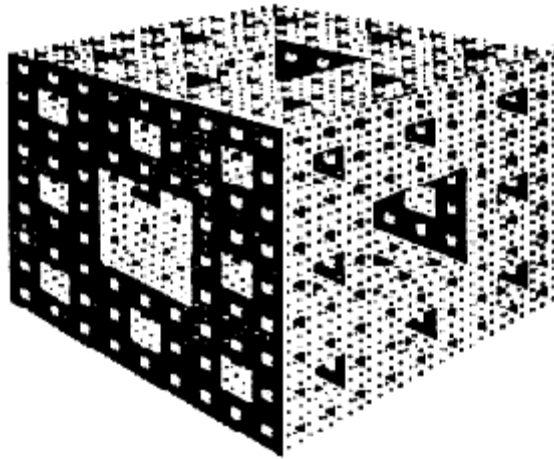


8.



9. Sierpinsky Carpet





10. Menger Sponge

If you're interested in a more rigorous development of fractal theory, consult "The Fractal Geometry of Nature" by Benoit Mandelbrot. It is a seminal text in the field, and is written at an "educated layman's" level. For an even more rigorous discussion of more recent results, including computer applications, there are a few good good texts by Michael F. Barnsley, one of them is entitled "Fractals Everywhere" but it's pretty dense. Both of these books will have good bibliographies, too.

--Patrick White

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Symbolism in Hindu Temple Architecture and Fractal Geometry – ‘Thought Behind Form’

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Abstract: *The structural order followed by nature, also adopted in the construction of Hindu temples, was to depict the ultimate truth. This became possible by following fractal geometry. Fractal geometry plays a major part in the transmission of the symbolic intended meanings from the visibly manifested art and architecture of the temple, to the intellect of human beings, for perception in the correct sense. This paper is therefore an attempt to integrate and analyse the fields of study of, temple architecture, fractal geometry, symbolism, human perception of architectural expression, and temple concept through cosmology and*

philosophy. It is advocated that the use of fractal geometry in the construction of temples, and sculptures adorning them, helps in imparting the temple concept and idea in its correct value.

Keywords: Temple architecture; fractal geometry; symbolism; self similarity; human perception

Introduction and background to Hindu architectural philosophy

“Hindu temples go beyond just being the visual results of a mathematical process with interesting properties, but touch us deeper, almost on a spiritual level, like all objects of pure beauty.” (Trivedi, 1993)

It is significant that nowhere in the extensive vocabulary of the Indian languages is there a word that corresponds to the term ‘religion’. In fact, religious and non-religious matters are never distinguished in Hinduism, as it is unimaginable that any activity, impulse or process, can be without some divine potential (Michell, 1977, 1988). The term *dharma*, which is sometimes mistakenly used for religion, actually means righteousness or propriety. This gives some insight into the minds of the people following a *dharma* which teaches, not of religion, but of righteousness.

Hinduism believes that the universe is created, destroyed, and recreated in an endless series of repetitive cycles, where Brahma is the creator, Vishnu the sustainer and Shiva the destroyer. This trinity combines to form *Parameshwar (Purush)*, the Supreme Being who is the manifested form of the whole of infinity. Hindu philosophy views the cosmos to be holonomic and self similar in nature. According to ancient architectural tradition, Hindu temples are symbols of the model of the cosmos and their form represents the cosmos symbolically (Trivedi, 1993). This is significant and inevitable because of the strong relationship between the cosmos philosophy and the philosophy behind the temple structure. Hindu thought adheres to the related view that the macrocosm is ‘enclosed’ in the microcosm (Joye, Fractal Architecture Could Be Good For You , 2007), reinforced by Trivedi (1989) when he says that the whole cosmic principle (in Hindu philosophy) replicates itself again and again in ever smaller scales.

It is imperative to mention that there exist numerous theories regarding the concept of the temple, and subsequently, its various parts. Some of these theories are more relevant and accepted in some cases, whereas the others in other cases. This discrepancy does not undermine the validity of the concepts in any way, but reinforces the idea of interpretation at various levels and in different scenarios. With a higher objective, the variety in concepts helps each individual to take his own path and attain satisfaction of enlightenment in his own way.

Implicit in the motion of holonomy are the properties of homogeneity, isotropy, self-similarity and symmetries of various kinds (Trivedi, 1993). These are the values which are common to both geometric generation of temple forms and its philosophical concept. It is significant that these properties form the basis for the concepts of the temple structure and the geometry used, which will form the discussion in the later part of the paper. The human being is said to contain within itself, the entire cosmos – ‘*Aham*

Bhramosmi' philosophy (Trivedi, 1993), thus reinforcing the idea of 'part in whole' and 'whole in part'.

The cosmic order was the order found in the cosmos and simultaneously in the atom, and therefore in the intermediate scales. To maintain harmony, all man-made objects and structures were enjoined to be fashioned with the same measurements and principles with which the cosmos is made, and so the underlying order and symmetries of the cosmos manifest themselves in the designs and representations made by man (Trivedi, 1993). This is most relevant in the case of Hindu temples, because of the obvious necessity to relate with the cosmic dynamism. The notion of temple as a model of the cosmos has existed over 3000 years in texts and for more than 1000 years in actually realised monuments (Trivedi, 1993). Subhash Kak (2005) has explored the connections that tie the details of the temple form and its iconography to fundamental Vedic ideas related to transformation (Kak, Early Indian Architecture and Art, 2005).

If we trace the artistic forms of things, made by man, to their origin, we find a direct imitation of nature (Lethaby, 1891, 2005). This does explain the common processes used for the creation of art. It should be noted that sometimes the aesthetic appeal of fractal-like patterns is also explained by the fact that the nervous system is governed by fractal-like processes (explained later) (Joye, Architectural lessons from environmental psychology: the case of biophilic architecture, 2007). There is enough evidence to prove that nature, cosmos, human body and human mind all follow the same algorithm in geometrical progression.

Temple architecture – manifestation of the philosophy

"As the pigments are but the vehicle of painting, so is the building but the vehicle of architecture, which is *the thought behind form*, embodied and realised for the purpose of its manifestation and transmission. Architecture, then, interpenetrates building, not for satisfaction of the simple needs of the body, but the complex ones of the intellect." (Lethaby, 1891, 2005)

How humans experience architecture, is an extensively talked about subject. The conclusions can be drawn only after certain connect and relationship has been formed between the building and the observer. This connection needs a basis or connecting thread to be formed. The scales at which human beings can comfortably perceive things and interpret to understand, is limited. The cosmic scale and the atomic scale – the two ends of scale – are unperceivable to the human naked eye, and therefore contribute only conceptually to the ideas of homogeneity, isotropy, self similarity etc. So, the eternal truth embedded within these concepts geometrically, needed to be manifested into a scale which human eye can perceive and interpret in their own right, also being an inherent part of their worldly experience (For example in Figure 1: Jagdambi Temple, Khajuraho). Here, temple architecture comes to help.



Figure 1: Jagdambi Temple, Khajuraho

In the Hindu temple, the potentially divine becomes visibly manifest and therefore approachable by man (Michell, 1977, 1988). Hindu art is dedicated to rendering the world of the gods visible; its sacred images voice the messages of the gods (Michell, 1977, 1988). The role of the Hindu artist is to give visible form to the values of his society, rather than to communicate a personal interpretation of these values (Michell, 1977, 1988). These values may sometimes also be referred to as 'collective memory', which is not individual understanding, or memory, but the collective consciousness of the society. The form language is stored in collective memory and recorded in physical materials, and is older than writing (Salingaros N. A., 2006, 2008). Each traditional form language is distinct, yet possesses a comparably high degree of organised complexity in terms of visual vocabulary and combinatoric possibilities (Salingaros N. A., 2006, 2008). This collective consciousness of the society carries memory in the form of concepts or images and manifests itself by favouring the most stable and comforting 'visual memes' (self sustaining conceptual entities that become fixed in human memory (Salingaros N. A., 2006, 2008)).

In order that certain theological ideas should be translated into art, particularly in the fashioning of sacred images (Figure 2: Outer Fascade, Kandaria Mahadev Temple, Khajuraho), the priests set out elaborate prescriptions which governed all the details (Michell, 1977, 1988). *Brihatsamhita* and *Sthapatyaveda* give the solution as the temple which should act as the microcosm of the cosmos

(Stierlin, 2002). These have been developed through the ages with serious consideration to the aspects of human mental comfort and intrinsic affiliations, and the ultimate truth to be conveyed to them. The temple has been the centre of the intellectual, social and artistic life of the Hindu community, functioning not only as a place of worship, but also as a nucleus around which all artistic and cultural activity is concentrated and flourishes. The influence that this structure had on the society as a whole was immense; from suggesting worldly behaviour and practices, to striving to achieve the ultimate goal of human life; magnifying its responsibility of directing the individual's gaze towards the ultimate goal.



Figure 2: Outer Fascade, Kandaria Mahadev Temple, Khajuraho

The most well known document which guides the construction of temples is the *Vastushastras* – texts where instructions are in the nature of general programs from which different temple forms may be generated. Ancient writings on *Vastushastra* are spread through a diverse body of texts ranging from philosophical texts such as *Upaishads*, to technical manuals encoding artisanal knowledge like the *Brihat Samhita*, *Mansara*, *Mayamata* and *Vastusutra* (Datta, 2010). Hindu temple architecture is vast and requires an understanding of not only Hindu philosophy, but also the nature of religious practices, rituals and temple worship in Hinduism (Trivedi, 1993). It combines the subjects of philosophy, cosmology, psychology, mathematics,

geometry and an in-depth understanding of the social and cultural life of the people and the times, to be able to arrive at a form which satisfies every individual's intellect, imparting knowledge suitable to each.

Senses, feeling and embodiment interact with narrative in the quest for meaning. In order to maintain such a holistic awareness, it requires a shift from an oscillating to a circular dialectic that tracks the hermeneutic relations between the whole and its parts, and vice versa (Schorch, 2014). Architecture, described as thought behind form, is the most appropriate vehicle, for carrying the messages addressed for human mind. This special relationship formed between the structure and the human mind, substantiates the experience through symbolism. Therefore the connecting basis may be developed through the use of symbolism, which touches the intellect in more than one way.

Symbolic expression and perception

"The history of symbolism shows that everything can assume symbolic significance: natural objects (like stones, plants, animals, men, mountains and valleys, sun and moon, wind, water, and fire), or man-made things (like houses, boats, or cars), or even abstract forms (like numbers, or the triangle, the square, and the circle). In fact, the whole cosmos is a potential symbol." (Carl Gustav Jung, *Man and His Symbols*, 1964)

A Hindu temple is a symbolic structure that represents certain fundamental concepts of Hindu philosophy about the nature of cosmos, and the formal characteristics of the temple are the outcome of this symbolic representation (Trivedi, 1993). The Rig Veda used a subtle system of symbolism, so that in later Indian thought its meaning was always open to *interpretation at several levels* (Michell, 1977, 1988). A universe is the result of time that follows the cosmic order in which a fraction of moment is the microcosm of the biggest time unit (Md Rian, et al., 2007). It is most important to understand that the temple form, from a point of view, identifies itself with the form of the universe. This point, already been mentioned, will be elaborated as the discussion proceeds. The symbolism of temple buildings sometimes seems to refer to the structure of the world and sometimes to the religious relationship of men to the gods (Saussaye, 1891). This dual role is fulfilled by the intricately complex symbolism which are '*open to interpretation at several levels*', thus facilitating our understanding. Every religious expression in art represents, therefore, an encounter between man and divine (Eliade, 1985).

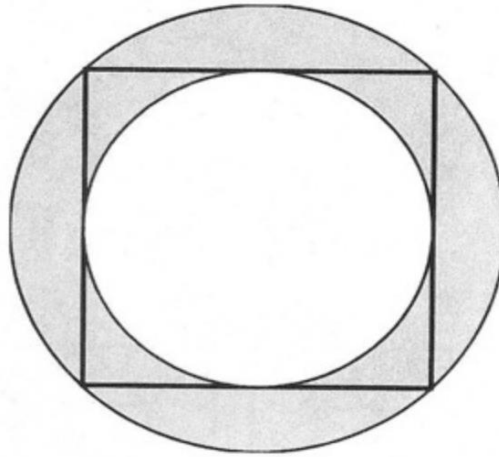
The very dynamics of the cosmos are expressed in the tensions of the conflict between good and evil rather than in an ultimate resolution which never takes

place (Michell, 1977, 1988). This tug of war between the good and the bad is mundane, superficial and yet desirable (Dutta, 2013). They are part of us – our own creation – the product of our mind and body (Dutta, 2013). [Here], the religious man is confronted with the sacred character of the cosmos; that is, he discovers that the world has a sacred significance in its very structure (Eliade, 1985). Eliade says that sacred art seeks to represent the invisible by means of the visible and through the mediation of artistic expression the attributes of religious abstraction are revealed, so to speak, it is presented in visible form. This intent is especially true [for Hinduism], where philosophical speculation has evolved a systematic treatment of the nature and attributes of divinity. Her theory, that humans are interested to depict and display their God's 'form' as well as their 'works' is substantiated through the fact that cosmos is considered to be their supreme creation, at the same time the God Himself. To sum up, Hindu temple is therefore not only the abode of God but also the form of God (Md Rian, 2007).

Geometry and its Application

In Hindu thought, number is considered an expression of the structure of the universe and a means of effecting the interplay between the universe and man (Michell, 1977, 1988). When numbers are given shape and form, geometry comes into play. To be able to impart the symbolic meanings to the mind of the observer through the eyes and brain, there was a need to establish a certain geometry which will attract the eyes and arouse the brain. To be able to convey these meanings through form, a strong relationship had to be developed between form and meanings in a decipherable language. This relationship that develops between forms and their meanings within the Hindu temple is essential to its function as a link between the gods and man (Michell, 1977, 1988).

The basic plan form of any temple is built upon the *Vastu Purush Mandala*, which is a square, representing the earth. It also symbolises order, the completeness of endless life and the perfectness of life and death (Michell, 1977, 1988). In the foundation of any Hindu temple, cosmos is embodied by laying down the diagram of *Vastu Purush Mandala* on a selected ground. This divine diagram reflects the image of cosmos through its fractal qualities (Md Rian I, et. al., 2007). The Mandala can be considered an ideogram, while the temple is the material manifestation of the concepts it embodies (Trivedi, 1993).



Square and Circle Superimposed; Symbolising the earth and the cyclical time

The square symbolises order, unequivocal form, the celestial sphere and the absolute. The circle on the other hand represents movement, and therefore time. The square and circle, by their very nature, are constant, but the rectangle is not. The square, with its potential to include competing elements, when enclosing a circle represents the dimensions of both space and time. As the cosmos is represented by the circle symbolically, the process of making an architectural model of the cosmos involves the representation of a circle in a square grid in two-dimensional construction and of an ellipsoid (the cosmic egg) in a cubical grid in three-dimensional construction. A process of descritization of all curved forms is necessitated by this need to represent them in a square grid, which results in the typical jaggedness of the temple plan (Trivedi, 1993). The transformation of circle to square and square to circle is not one which can be explained through Euclidian geometry. It needs an intricate understanding of the nature and geometry of natural forms. The process by which natural elements gain their unique form can be applied to the temple structures to find the underlying theme. The application of this algorithm to the temple construction gives it the remarkable appearance.

The superimposition of the square and the circle is significant considering their individual symbolic meanings (Figure 3: Square and Circle Superimposed; Symbolising the earth and the cyclical time). Both of these when put together acquire the properties of order and movement. Also, this superimposition depicts the celestial sphere and the Absolute, with respect to time; where eternal time is also the smallest moment. This proves the involvement of circle with square, with respect to the temple concept and philosophy. The most impressive aspect of the temple representation is that it occurs both at the level of the part as well as the whole in a recursive fashion mirroring the Vedic idea of

the microcosm symbolising the macrocosm at various levels of expression (Kak, Space and Cosmology in the Hindu Temple , 2002)

Nevertheless, this form of geometry, i.e. Euclidian Geometry, does not suffice to generate the process of development of the structure of the temple. It does not help to describe the form of the Hindu Temple and its embodied depictions of dynamics, movement, tension, order and harmony. Fractal geometry, though, has been found to be able to explain most of the forms and patterns in a temple complex.

Fractal Geometry – Application and Importance

“... the dynamic formal structure of Indian temples shows irresistible analogies with certain metaphysical ideas recurrent in Indian thought: of the manifestation in transient, finite multiplicity of a timeless, limitless, undifferentiated yet all pervading unity; of the identity of this oceanic infinitude with the all-containing infinitesimal point; of finite things as fleeting transmutations of the infinite momentarily differentiated, then sinking back into unity, in unending cycles of growth and decay.” (Hardy, 2007)

The existence of the phenomenon of self similarity in the natural world has been observed and known since antiquity, but its mathematical understanding and the process of arriving at it began with Mandelbrot's work in 1977, even though the credit should be shared by various mathematicians and philosophers for their contributions during the twentieth century which made this possible. The fractal dimension is a statistical quantity that gives an indication of how completely a fractal appears to fill space, as one zooms down to finer scales (Xiaoshu Lu, 2012).

Fractal analysis is being increasingly used for analysis in various fields including medicine, psychology, urban form and architecture. These developments include refinement in the software usage for computing fractal dimension, which is a measure of the roughness and degree of details. This, when applied to the field of temple architecture enhances understanding of the structure geometrically. In particular, Anderson and Mandell (1996) argue that human evolution in a fractal world has required “the incorporation of fractal structures as well as fractal processes, and these in turn would be integrated into sensory systems, recognition, memory, and adaptive behaviours” (Joye, Architectural lessons from environmental psychology: the case of biophillic architecture, 2007).



Figure 4: Sun Temple, Modhera; Fractal development of form is profound

The role of fractal geometry in the construction and physical manifestation of the Hindu temple has not been fully understood until recent developments in the field of fractal software helped in the partial understanding of the deep relationship between them. The fractal characteristic of an architectural composition presents itself in this progression of interesting detail as one approaches, enters and thus uses a building (Bovill, 1996). This represents a progression of observation from across the street to inside a room. The idea that temple architecture has a progression of detail from a large to small scale is accepted. But, fractal analysis provides a quantifiable measure of the progression of detail, also quantifying the mixture of order and surprise in a rhythmic composition (Bovill, 1996).

In many practical applications, temporal and spatial analysis is needed to characterise and quantify the hidden order in complex patterns; fractal geometry is an appropriate tool for investigating such complexity over many scales for natural phenomena (Xiaoshu Lu, 2012).

Although employed in various fields in different roles, fractal geometry has been applied particularly in architecture as a language which translates the beauty of complexity as well as the ideas of architects (Thomas, 2002) into visible dynamics (Figure 4: Sun Temple, Modhera; Fractal development of form is profound). It also reflects the process of universe and its energy through the buildings (Jencks, 1995). Hindu temple is one of the best examples of those fractal buildings which were constructed in the past, long before the birth of fractal theory and manifested the religious cosmic visions (Jackson, 2004). In his paper, Md Rian, et. al., evidence the deep relationship between fractal geometry and the deepest truth in Hindu temples. Trivedi pointed out that there exists a striking resemblance of temple forms to images based on fractal geometry. Countless temples exist all over India... which could be viewed as three dimensional structures based on fractal geometry (Trivedi, 1993). There are various methods to evaluate the fractal dimension, among which the box

counting method is suitable for measuring the fractal dimension of the elevation of buildings, mountains, trees or any objects which are not true fractals (Md Rian I, et. al., 2007). This measurement of the fractal dimension helps in quantifying the beautiful mix of *order and surprise* in a structure. This contributes in forming the appropriate heuristics in the human minds, and therefore setting the stage for higher and clearer understanding.

Discussion – Integration of above mentioned ideas



Figure 5: Sky-Soaring Shikhara, Khajuraho

The most remarkable aspect of the relationship of fractal geometry and Hindu temple architecture is that, not only does the physical manifestation of a Hindu temple confirm to the geometry of fractals, but also the theory behind fractal geometry, i.e., the fractal concept is parallel to the concept and idea of temple and its philosophy. The parameters of replication in multiple iterations, self similarity, dynamics and complexity at varying scales are the ones that render Hindu temples fractal-friendly, therefore, forming the base for fractal analysis in the Hindu temple. The literature in this regard, addresses how fractal geometry can be applied to the underlying concept and the physical manifestation of a Hindu temple to arrive at the final form. These studies ignore the aspect of 'symbolism' which is evident in a temple complex. It holds a very important position in the overall concept as well as the symbolic representation of the 'ultimate truth'. The *Vastu Purush Mandala*, geometrical basis of the Hindu Temple plan, is the result of fractal iterations. Arnheim, in his book, 'Art and Visual Perception', describes intricately the hidden fields of forces within the square where each side of the square applies force towards the centre. Thus

increasing the number of squares in a *Mandala* helps the diagram to contain the (cosmic) energies more concretely where the field of forces is increased in a fractal manner. These restored energies in the Mandala radiate outwards to the physical world eternally from the centre. With time, the final shape of *Mandala* turns into a complex matrix through various transitional stages. In these stages, plans of some earlier temples evidence that the fact of radiating cosmic energy took the main role for amending the basic shape of *Mandala*. Interestingly, it turns out in some cases that the process of amendment is nothing but the fractal iteration of *Mandala* (Md Rian I, et. al., 2007). The well-controlled zigzag plan of the temple creates the vertical visual rhythm, accentuated in the elevation through its sharp recessions and projections, whereas the horizontal friezes on the elevation create the horizontal rhythmic growth upward (Md Rian I, et. al., 2007). In the *shikhara*, the amalgamation of the form of lotus blossom and that of mountain has been frozen into the form of multiple recursive archetypes (Md Rian I, et. al., 2007). As discussed earlier, the circle depicts the endless cycles of time, the wholeness and the consciousness due to its never-ending shape. Each iteration starts from the intersection between a side of the diagonal square and the last iterated line, and stops at the intersection between grid line and the circle. This iteration stops at the corners of the square. Hindu cosmology, manifested in the plan of Hindu temple two dimensionally, was also manifested in its elevation but three dimensionally and more symbolically (Md Rian I, et. al., 2007). Looking at a well known and well researched Shiva temple of India, the *Kandaria Mahadev Temple*, Khajuraho, in the light of the previous discussion, it is brought about superficially, that these Hindu temples confirm to the idea which is a beautiful combination of the religious faith, geometrical achievements, understanding of human comfort and aesthetics, how human beings perceive (psychology), fractal geometry and its concept, knowledge of cosmology and its philosophy, and most importantly, symbolism.



Figure 6: Laxman Temple, Khajuraho, Symbolically- Emanating Universe

In the case of Kandariya Mahadev temple, the main tower above the sanctuary is repeated at its four sides and the same process of repetition is continued in each newly born smaller tower, and again this process repeated in the last newly born smaller tower. At the same time smaller towers are repeated on the body of main tower in which the whole tower attains such an arrangement where one can easily feel the whole in a part within another part (Md Rian I, et. al., 2007). In the *Nagara shikhara*, the application of a recursive procedure, applied in three dimension, makes the high tower of the shikhara throw forth diminutive multiples of its own shape in high relief, each one and all of them subordinated to the bulk of the total *shikhara* (Trivedi, 1993). Placing of the smaller towers on the elevation is such that the peaks of each smaller tower pointing towards the summit of main central tower, makes the impression of unity in infinity towards cosmic axis. Another significance of such arrangement of smaller towers on the *shikhara* of Kandariya Mahadev temple is the man's perception for seeing the whole body of shikhara in its self-similar parts from any location of view (Md Rian I, et. al., 2007).

Even the smallest details of the temple carry the concept of creation. Naked eyes go to the tiniest details up to some level, but the story or the images of the gods; where mythology plays an important part; makes a passage of spiritual journey for the 'third eye' -power of imagination- to perceive what is further towards infinity.

In a footnote [Summerson] cites James Fergusson's observation, in his pioneering work of 1876, that 'everywhere ... in India, architectural decoration is made up of small models of large buildings' (Hardy, 2007). Hardy reinforces the idea of self similarity and depiction of the same attribute across different scales, by mentioning that aedicules are not just ornaments, but the basic unit

from which most Indian temple architecture is composed (Hardy, 2007). A temple design is conceived as containing numerous smaller temples or shrines, arranged hierarchically at various scales, embedded within the whole or within one another (Hardy, 2007). As Summerson puts it; 'The aedicule unlocks door after door'. These examples put some light on the implementation and manifestation of the concepts and ideals emphasized by Hindu philosophy for the construction of the temples, so that correct impact is made on the human mind.



Figure 7: Ceiling of Temple, Khajuraho, Symbolically- Emanating Universe

Scholarship has associated several meanings with Hindu temples: house of God, heavenly palace or city of God, mountain, cosmos (Hardy, 2007). This is significant because if these connections are lost, then the final imagery for interpretation is not formed, hence deceiving the idea of construction. This is where fractal geometry comes in to help understand, decipher and interpret the temple in its magnificence. Some authors hypothesize that the proposed fractal nature of the human mind and brain can illuminate the creation of fractal artwork. Essentially, such art should be understood as an exteriorisation of the fractal aspects of brain functioning (Goldberger, 1996). As he puts it, "The art work externalises the maps and the internal brain-work... Conversely, the interaction of the viewer with the art form may be taken as an act of self-recognition". Nikos Salingaros mentions in his paper (1998), that buildings satisfying certain rules are sub-consciously perceived as sharing essential qualities with natural and biological forms , and as a consequence, they appear more comfortable psychologically (Salingaros N. , 1998). From a study of natural entities Salingaros

concludes that the scaling relationship between these elements should obey the ratio of 2.7, to be aesthetically pleasing (Joye, Fractal Architecture Could Be Good For You , 2007). Scaling coherence, which is the basis of fractal geometry, is a major feature of Temple Architecture (Salingaros N. , 1998). The ratio of 2.7 walks along the lines of fractal geometry and supports the argument. It becomes evident from the above discussion that the various relationships established, through fractal geometry, are not manifested with similar physical appearances, but similar aesthetic appeal. This is because the algorithm or process used to develop the physical arrangement is similar.

Conclusion

The need to relate all these streams of thought and study is to be able to demonstrate that even though the integrated whole doesn't form a part of imparted knowledge of a person, the concept and idea manifested, does impact the human mind in the way discussed above. This fact is due to the philosophical connotations of the various strategies and tactics employed in its construction, which meets not only the human eyes but the intellect, and touches it deeply.

This paper, therefore, attempts to provide a point of view for the reader and observer, by integrating various streams of thought and presenting a new perspective. It is advocated that the primitive, but beautifully complex, and satisfying form of these temples has been arrived at; not through the use of complex computer algorithms, generative of structures; but by intuitive processes, giving a fair idea of human intrinsic affiliations, satisfying intellectual needs. It is estimated that, had fractal geometry not been used in the physical manifestation of the temple philosophy, it would have been difficult to impart the knowledge intended by temple construction. Every element in the temple structure, the *prasada*, the *shikhara*, the finial, the sculpture on the exterior and interior walls, the jagged plan form and the appearance in totality, take help of fractal geometry; within the perceivable scales; to promote their idea and concept. The implementation of fractal geometry ensures that the underlying structure resemble the structure found in nature and hence provides the temple with its aesthetic appeal. It has been noticed that, not only does the physical manifestation follow the principles of fractal geometry, but also the idea of construction, i.e., the concept of the temple and its philosophy, is akin to the concept of fractal geometry and fractal progression. This, points towards the conception that even though the formal theory of fractals had not been developed; like today; at the time of temple construction, the concept existed in the minds of the priest and *sthapaty*. This concept is in tune with the cosmological and philosophical theory attested by the temple structure. This

attempt has been directed, not so much, towards creation, or recreation, of a temple form, but focus has been on the process for arriving at these forms. The use of fractal geometry in the construction and design of temples is evident, but the question raised here is, 'why?'. This can be answered by analysing the cosmological and philosophical requirements the temple structure aims to fulfil symbolically, alongside the theory of fractals. The author's work here, centres on the establishment of the mediatory role of fractal geometry and its theoretical application, in the relationship of the philosophical concept and the physical manifestation of a Hindu temple. It should be noted that this article has touched upon the concept theoretically, and suggests the possibility of the existence of this relationship. This project can succeed with a trans-disciplinary approach, where every subject is given importance and analysed through fractal lenses

Acknowledgements

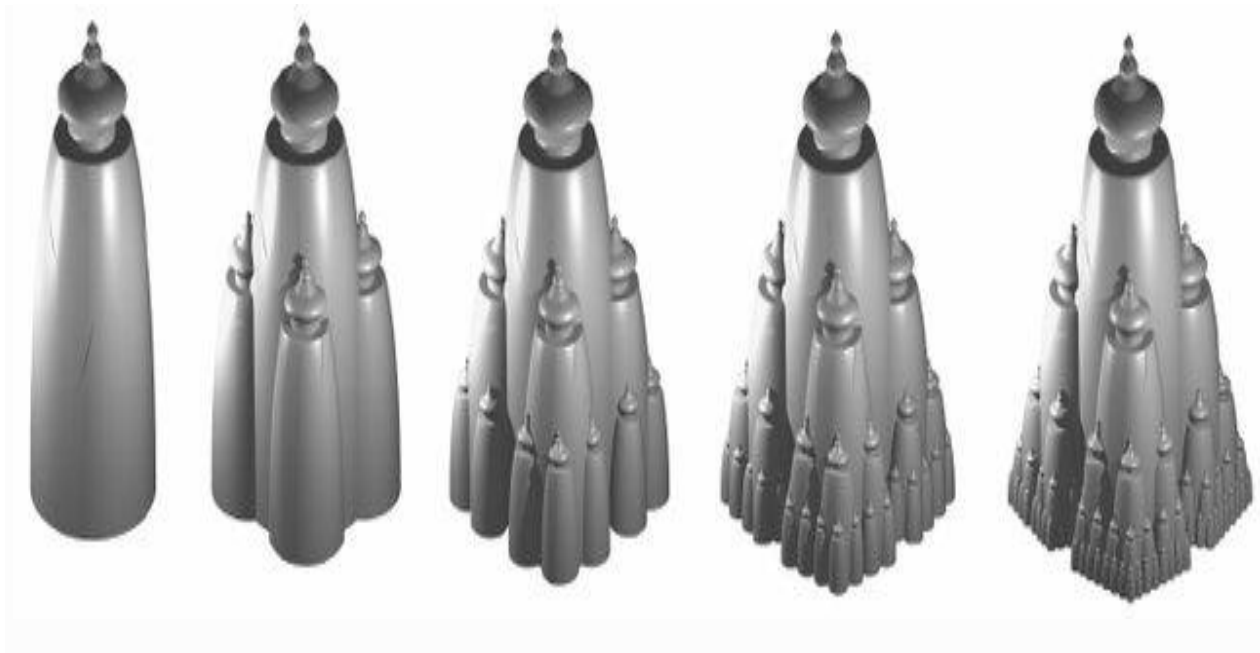
The photographs and diagrams are courtesy the author.

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Fractal generation of central dome of a Hindu Temple

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Further Reading:

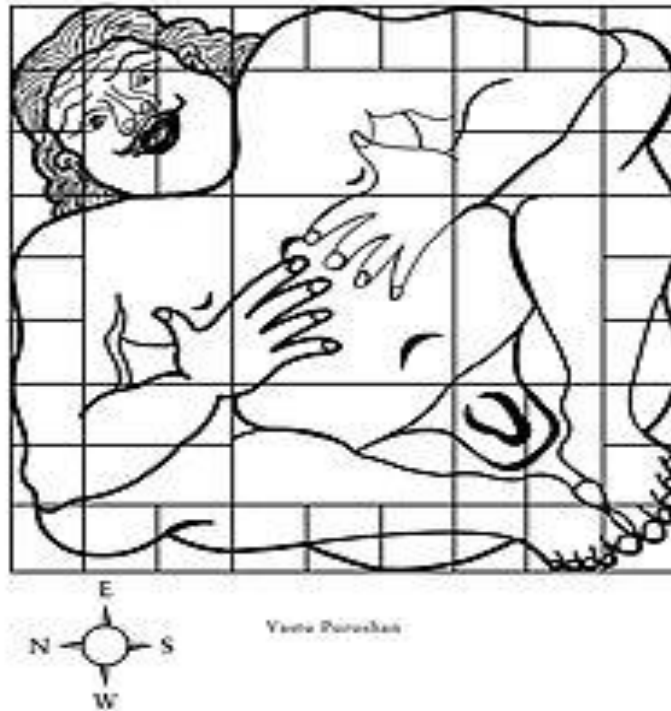
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Yuri Avvakumov – *Agitarch Structures: Reconfiguring Utopia*

CHAPTER XVIII

Vastu Purusha Mandala Of Property

As per Vastushastra, the main deity of a building is its Vastu Purush. To quote the Rig Veda,
**"TAVA TVAM VAASTUNYU IMASI GA MADHYE?YATR GAVAU BHURI SHRINGA
AVASAH,"**

meaning Vastu has a very close relation with the 'Grihadevata' or the deity of the house. As per my knowledge of the ancient scripture named Shatpath Brahmin, Vastu forms the ruling deity of the animal stock and humans living within **a structure**.



The concept of Vastu Purusha

The *Vastu Purusha Mandala* is an indispensable part of vastu shastra and constitutes the mathematical and diagrammatic basis for generating design. It is the metaphysical plan of a building that incorporates the course of the heavenly bodies and supernatural forces. Purusha refers to energy, power, soul or cosmic man. Mandala is the generic name for any plan or chart which symbolically represents the cosmos.

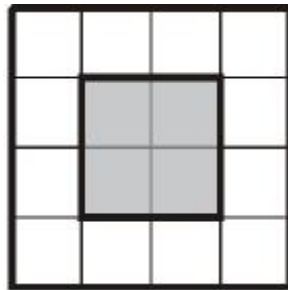
In Hindu cosmology the surface of the earth is represented as a square, the most fundamental of all Hindu forms. The earth is represented as four-cornered in reference to the horizon's relationship with sunrise and sunset, the North and South direction. It is called *Chaturbhuji* (four cornered) and represented in the form of the Prithvi Mandala. The astrological charts or horoscopes also represent in a square plan the positions of the sun, moon, planets and zodiac constellations with reference to a specific person's place and time of birth.

The legend of the Vastu Purusha is related thus. Once a formless being blocked the heaven from the earth and Brahma with many other gods trapped him to the ground. This incident is depicted graphically in the Vastu Purusha Mandala with portions allocated hierarchically to each deity

based on their contributions and positions. Brahma occupied the central portion - the Brahmasthana- and other gods were distributed around in a concentric pattern. There are 45 gods in all including 32 outer deities.

- North- Kubera- Ruled by lord of wealth (Finance)
- South- Yama- Ruled by lord of death - Yama(Damaging)
- East- Indra- Ruled by the solar deity- Aditya (Seeing the world)
- West- Varuna- Ruled by lord of water (Physical)
- Northeast {Eshanya} - Ruled by Shiva
- Southeast- Agni- Ruled by the fire deity - Agni (Energy Generating)
- Northwest- Vayu- ruled by the god of winds (Advertisement)
- Southwest- Pitru/Nairutya, Niruthi- Ruled by ancestors (History)
- Center- Brahma- Ruled by the creator of the universe (Desire)

Mandala types and properties



Mahapitha Mandala

The central area in all mandala is the Brahmasthana. Mandala "circle-circumference" or "completion", is a concentric diagram having spiritual and ritual significance in both Buddhism and Hinduism. The space occupied by it varies in different mandala - in *Pitha* (9) and *Upapitha* (25) it occupies one square module, in *Mahaapitha* (16), *Ugrapitha* (36) and *Manduka* (64), four square modules and in *Sthandila* (49) and *Paramasaayika* (81), nine square modules. The Pitha is an amplified Prithvimandala in which, according to some texts, the central space is occupied by earth. The Sthandila mandala is used in a concentric manner. The most important mandala are the Paramasaayika Mandala of 81 squares and especially the Manduka/ Chandita Mandala of 64 squares. The normal position of the Vastu Purusha (head in the northeast, legs in the southwest) is as depicted in the Paramasaayika Mandala. However, in

the Manduka Mandala the Vastu Purusha is depicted with the head facing east and the feet facing west.

An important aspect of the mandala is that when divided into an odd number of squares, or *ayugma*, its center is constituted by one module or *pada* and when divided into an even number of squares or *yugma*, its center is constituted by a point formed by the intersection of the two perpendicular central lines. In spatial terms, the former is *sakala* or manifest/ morphic and the latter is *nishkala* or unmanifest/ amorphous.

Mandala in siting

The mandala is put to use in site planning and architecture through a process called the *Pada Vinyasa*. This is a method whereby any site can be divided into grids/ modules or *pada*.

Depending on the position of the gods occupying the various modules, the zoning of the site and disposition of functions in a building are arrived at. Mandala have certain points known as marma which are vital energy spots on which nothing should be built. They are determined by certain proportional relationships of the squares and the diagonals.

A site of any shape can be divided using the Pada Vinyasa. Sites are known by the number of divisions on each side. the types of mandalas with the corresponding names of sites is given below.

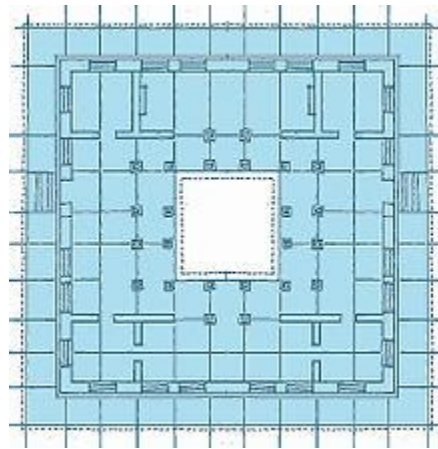
- *Sakala*(1 square)corresponds to *Eka-pada* (single divided site)
- *Pechaka*(4 squares) corresponds to *Dwi-pada* (two divided site)
- *Pitha*(9 squares) corresponds to *Tri-pada* (three divided site)
- *Mahaapitha*(16 squares) corresponds to *Chatush-pada*(four divided site)
- *Upapitha*(25 squares) corresponds to *Pancha-pada*(five divided site)
- *Ugrapitha*(36 squares) corresponds to *Shashtha-pada*(six divided site)
- *Sthandila*(49 squares) corresponds to *sapta-pada*(seven divided site)
- *Manduka/ Chandita*(64 square) corresponds to *Ashta-pada* (eight divided site)
- *Paramasaayika*(81 squares) corresponds to *Nava-pada*(nine divided site)
- *Aasana*(100 squares) corresponds to *Dasa-pada* (ten divided site)

Mandala in construction

The concept of sakala and nishkala are applied in buildings appropriately.

In temples, the concepts of sakala and nishkala are related to the two aspects of the Hindu idea of

worship - *Sagunopaasana*, the supreme as personal God with attributes and *Nirgunopaasana*, the supreme as absolute spirit unconditioned by attributes. Correspondingly, the Sakala, complete in itself, is used for shrines of gods with form (*sakalamoorthy*) and to perform yajna (fire rites). However the Nishkala is used for installation of idols without form- *nishkalamoorthy*- and for auspicious, pure performances. The amorphous center is considered beneficial to the worshippers, being a source of great energy. This could also be used for settlements. In commercial buildings, only odd numbers of modules are prescribed as the nishkala or amorphous center would cause too high a concentration of energy for human occupants. Even here, the Brahmathana is left unbuilt with rooms organised around.

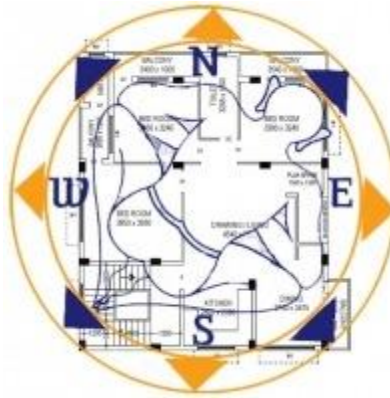


House grid with sloping roof and open courtyard.

In accordance with the position occupied by the gods in the mandala, guidelines are given for zoning of site and distribution of rooms in a building. Some of these are:

- **North** - treasury
- **Northeast** - prayer room
- **East** - bathroom
- **Southeast** - kitchen
- **South** - bedroom
- **Southwest** - armoury
- **West** - dining room
- **Northwest** - cowshed

Vastu Purusha Mandala



Vastu Purusha Mandala is the metaphysical plan of a building that incorporates the earthly bodies and supernatural forces. Purusha refers to an Energy, Soul or Universal Principle. Mandala is the generic name for any plan or chart which symbolically represents the cosmos. Vastu Purush is worshiped during the five stages of the construction i.e. Plot demarcation, Space clearing (Bhoomi Shodhan), Door installation, Laying Stone for Foundation and on the day of house warming.

On any plan Vastu purusha is placed with the head in the northeast and legs in the southwest. If we see over here floor plan, it has been divided into various zones and there is a square grid which is being followed and every square has a certain representation, it connotes to a certain supernatural power and divine energy. When these grid is followed during the construction, it is said that there would be a divine presence in the house that will breathe and live for long.

Very interestingly we see this principles of Vastu Shastra with square grid was followed in the planning of city Jaipur.

Vastu square grid

For the construction of town, village or fort, vastu purush is worshiped on 64 squares (pada) grid

For the construction of the house, 81 square (pada) grid of vastu purush is worshipped

For temple, 100 Square (pada) grid is worshipped

In Vastu purush mandala, the square grid (pada) are associated with certain deities

- North – Ruled by lord of wealth (Money)
- South – Ruled by lord of death (Death)
- East – Ruled by the solar deity- (Prosperity)

- West – Ruled by lord of water (Physical)
- North-East – Ruled by Shiva (Divine)
- South-East – Ruled by the fire deity (Energy)
- North-West -Ruled Lord of Air (Travelling)
- South-West – Ruled by Nairuti & ancestors (ancestors blessing)
- Center – Rules by the creator of the universe (balancing)

The Hindu Architecture

We often hear devout Hindus say, "Hinduism is more than just a religion; It is a way of life." While members of other religions also like to say the same thing—few devoted people want to think that their religion is not a way of life—there is actually some justification for the Hindu statement. We can say this because Hindu culture has never fully separated its so-called “secular side” from its religious side, something that has taken place in many other religions as a result of the secularizing influence of modernity. We have noted this fact in reference to astrology. Hinduism still includes, not only religion, but also astronomy, astrology, grammar, mathematics, law, medicine, politics, diplomacy, war, love, architecture and many other branches of knowledge. In this way, Hinduism is holistic. It is not just about theology.

Vaastu Shastra

It is popular in many Western countries to hear about the ancient Chinese system of Feng Shui, which attempts to align the energies of the physical world with the life of man. The branch of Hindu learning that includes these ideas is called Vaastu Shastra, Hindu Architecture. In Sanskrit the word “*vaastu*” means a building or structure and so the expression “*vaastu shastra*” is the science of structure. Like Vedic astrology, *vaastu* is a vast and highly developed branch of learning and in this installment I can describe only the most basic principles of this subject. There are, of course, whole books devoted to this wonderful subject and an interested reader is encouraged to study these books, especially if one is planning to build or buy a home, commercial building or land for construction.

Hindu Architecture addresses two kinds of buildings: religious structures—temples and shrines—and non-religious structures, civic buildings, business complexes and residential homes. In

Hindu culture, not only is the home and family all important, but so is the actual building where the family lives. Consequently, how a physical building is designed and constructed is a matter of deep concern. Hindu traditions tell us that there are forces, some subtle and others not so subtle, some positive and some negative, around us at all times, and like the Chinese system of Feng Shui, it is in man's interest to arrange his life to take advantage of these positive forces and avoid the effects of the negative forces. It has been observed that through the proper orientation of a building and other techniques, the positive forces can be focused in a way that will lead to an increase in wealth, happiness, and harmony for the residents of such a building. Conversely, the wrong orientation of a structure and other architectural failures can cause unhappiness, disease and troubles for the inhabitants. The same can be said for other buildings including temples, business and civic structures.

In our discussion on astrology, we pointed out some of the essential principles of Hindu theology that affect not only astrology, but many other subjects of learning, including Hindu architecture. The first is the idea that the world is a manifestation of the body of God or, more precisely, the world **is** the body of God. A sacred structure such as a temple is designed to be not just the home of God, but the actual **body** of God. The building is sacred because it **is** the Deity directly. The second principle concerns the relationship between the macrocosm and the microcosm. A tiny structure like a temple or a home, compared to the large universe, is constructed as a miniature version, a microcosm, of the greater universe, the macrocosm. And finally, the third principle teaches that the part always contains within itself the whole. Design a building by aligning the universe on the inside with the universe on the outside, knowing that the whole is within, and you control the forces of the universe within that building.

Hindu architecture always begins by laying the cosmic body of God (*purusha*) over every building site (*mandala*). This is called the Mandala Purusha. The accompanying diagram illustrates this and shows how this cosmic body is positioned in relation to the site. Notice that the head of "God" lays in the northeast corner. The basis behind this orientation is the principle of maximization of light that is described by the metaphor: the sun equals light, which equals knowledge, which equals consciousness and ultimately spiritual enlightenment. The east is the source of light and of all the points along this eastern axis the north-east point is the most important because it is the point of maximization of light. On June 21st of every year the sun

risers in the north-east and this is the day when daylight is longest and darkness is shortest. There is maximization of light at this point and so the north-east corner is called God's corner (*isha-kona*). The cosmic head, which is a symbol for enlightenment, is placed in the northeast. It is perhaps a little crude to mention, but notice where the cosmic anus is located. Ancient Hindu culture includes everything! This is the position reserved for the negative forces of the universe, personified as demons. The south-west corner, which is the exact opposite of the north-east corner is not considered an auspicious place and so when arranging a home one should avoid placing the meditation, kitchen, or financial areas in this place.

In addition to the sun, there are, of course, many other powerful forces that affect the life of man, and so these forces have also been considered in Hindu architecture and given their respective places. One of the most common features of Hinduism is its tendency to personify all things and so these forces are personified as Gods and given their proper "seats" in the various directions of Hindu architecture according to how they are positioned in the macrocosm, the greater universe. See the accompanying diagram that illustrates the sitting places of these powerful forces. Agni, the god of fire, sits in the south-east corner and so this is the ideal direction for a kitchen. Kuvera, the god of wealth sits in the north, so this is the best place for keeping financial matters. In this way, knowing the places of these forces, the next illustration shows the basic arrangement of how any building should be designed to create an alignment with the forces of the universe. This is the basis of Hindu architecture. Beyond this there are, of course, a large number of details. Below I provide just a few details found in Vaastu Shastra along with my explanations (in italics) to help the reader get an idea of how the system of *vaastu* works. Exactly how a building is designed will vary greatly according to the site and the needs of the family in the case of a house for example. There is a lot of flexibility built into this system of architecture.

*No garbage should be dumped in the north-east corner of the site or the building. *The reason for this is obvious: the northeast corner is God's corner.*

*Lawns and gardens with small plants should be grown in the northern and eastern side. Large trees should only be planted in the south and western sides, never in the east and north-eastern sides. *The east is the source of spiritual power and so this energy should never be blocked or obstructed. Blocking the southern direction blocks death. In addition, planting tree in the south*

and west provides cooling shade against the hottest positions of the sun.

**Beds should be placed so that when one sleeps the head is directed towards the south, east, or west, but never towards the north. A person's body is a tiny magnet with a north and south pole. One's head is the north pole. The universe is also a magnet (a very big magnet!) with a north and south pole. Polaris, the north star, is the north pole of the universe. Place two magnetic poles together and there is a repulsion. So to sleep with one's head in the directions of the universe's head is the same as placing two north poles together. There is repulsion. Therefore sleep will be better when the head is placed towards the south or another direction other than north.*

**Main doors should open to the east, north or west, but never to the south.*

The east is the source of divine light and therefore this is the preferred placement for the main door of a house. The south is the direction of the God of death and so a main doorway should not open to death.

**The site should be higher in the west than in the east. By sloping slightly to the east the site is open to the east, the source of divine light. In addition, a slope provides for water drainage.*

**The staircase should be located in the south, west or south-west corner. The stair or elevator area is not considered useful living space so these things are relegated to less important areas of the building.*

**A Kitchen should be located in the south-east corner, but may also be in the north-west corner. In either case the cooking area should allow facing east while cooking. The south-east the the place given to the fire divinity, Agni. A kitchen involves fire, so the placement is obvious. The cooking fire is a miniature sun and therefore light, so facing the cooking fire and facing east while cooking is facing light.*

**A Kitchen should never be in the south-west because it will endanger the health of residents. Notice that the south-west is the the place of the cosmic anus, so placing the kitchen in this location is not favorable for health. Instead the south-west is the proper place for toilets, garbage and storage of things like tools.*

**The site should be square or rectangular. Sites with triangles, round shapes, with five corners or more, or having odd shapes should be avoided. Symmetry is the basis of Hindu aesthetics, Odd shapes "confuse" or otherwise obstruct the flow of energy and create an imbalance of energy. A shape such as a triangle does away with one whole flank of energy.*

*The treasury should never be located in the west or south-west. *The deity of wealth resides in the north and so the financial part of a house should be in this position. As we have noted, the south-west is the place of negative energy, so one should avoid subjecting wealth to negative energy.*

*The meditation area ideally should be in the north-east, but should never be in the south-west. *The north-east is God's corner and the south-west is for less positive things. The placement for meditation is obvious.*

Finally, here is a sample home design that conforms to the principle of Vaastu Shastra. I provide this just to give a simple idea on how a building can be designed. There can be many many such designs.

What I have described in this short discussion on Vaastu Shastra is only a basic outline of what is a detailed and complicated subject. In spite of this, I have provided the essence of the subject matter as far as residential homes are concerned. There can be endless designs and there are many ways to adjust the designs and even design methods and *pujas* that can be performed to settle or neutralize problems and defects in the site and even in existing homes.

Vaastu Shastra for Children Bedroom

Children are the most important part of the family. Parents, they live for them and they render many services to their children just to make them versatile and to make their future bright. Parents, they also do many practices to provide the best to their children, but does the children know how to return back the favour given by their parents. Generally they doesn't know how to overcome with their studies and how to keep standing an elegant image and name of their parents in the society. Sleep in well manner is basic necessity for all. This is the only way to forget about all negativity and awful experiences and come up with new ideas and to get bliss in your life. children

Some vaastu tips for children bedroom:-

- For children bedroom west is the best direction. For girl's room north west is best, whereas for boys it can be northern and eastern part of the house.

- Entrance door of children bedroom should be in the north or east, and it should have one shutter only.
- The window should be opposite to the door & it should be small in west as compared to the one in east or north direction.
- Furniture should be few inches away from walls.
- Bed should be placed at south direction and some space should be left around the bed. if space cannot provide around the bed, then you can place the bed at south west corner or south or west corner.
- While sleeping children should place their head at east side and legs towards west side. It is very profound way for them to have high intelligence & knowledge. This position can raise more memory power.
- For almirahs and cabinet south or west direction is appropriate.
- Computer and television should not be placed in children bedroom and if you wish to place so the south east direction is suitable for television and can place computer in north direction of the room.
- LCD or the monitor at night reflects the bed, which behaves like a mirror & reflects bad energy.
- If you want to place study table in bedroom, then it should be in south direction that child could face east, north and northeast while studying.
- In children room up-light at south-east corner, it is good for health and also tends to generate positive energy too. Never use sharp lights and spot lights as it creates mental strain.
- Color affects mood a lot and even every aspect of life. Basically **green color** is ideal for **children's bedroom** as it increases brain power and also provides the freshness and peace.
- These few tips can be beneficial for the physical as well as mental development of your child & will provide the happiness and allow him/her to excel in all fields...

Implement Vaastu Tips

A plot with all corners 90 degrees having two sides road front and back is a good plot.

2. The open space left in North and east should be more than South and West.
3. The maximum construction should be done in South, West and southwest portion of the plot.
4. A pond or a water body should be placed in Northeast corner of the house.
5. A house should be designed in such a way so that there is maximum entry of sunlight and

proper cross ventilation.

6. The entire opening should be made on the North and East Side of the house
7. Trees of any kind should not be grown in eastern or northern, northeast directions.
8. Only small plant can be grown in North, east, Northeast.
9. The hearth or oven must be arranged in eastern southeast direction of the entire house, in such a way that the person cooking faces east.
10. The shadow of any tree should not fall on the house.
11. Pictures of any war scenes, demons, one in anger should not be placed in the house.
12. The slope of the property should be from West to east or South to north.
14. Allow a bright light on the main door.
15. It is best to leave only maximum 5 door open.
16. Avoid keeping a T.V. set in bed-room.
17. Avoid keeping any water feature or plants in the bed room.
18. Do not use separate mattresses and bed-sheet.
19. Arrange the furniture to form a square or a circle or an octagon in.
20. Brighten the corners.
21. Place a picture of bright sunrise on southern wall in living room
22. The wind should come from south-west in the bed room.
23. Dining-room should not expose to the front door of your house.
24. Never put mirror in kitchen.
25. Keep the broom and mops out of the sight in kitchen.
26. Keep the bathroom and toilet door closed as much as possible.
27. Windows should open outward normally.
28. Do not keep prickly cactus, plants in the house.
29. Place an aquarium in the south-east corner in living room.
30. Place a happy family picture in living room.
31. Please check there aren't grown very high trees like Bagan, Pipal, Thorny trees.
32. Please check the gate of the lift is not in front of the main gate of the house.
33. There should not be any room which has shape.
34. There should not be obstructive houses surrounding your plot.
35. The house should be fully airy and has enough water resource.

36.The seat in the latrine should be NORTH-SOUTH.

37.In the office, sit facing the door.

38.Hang a picture of mountains behind you in the office.

39.Place the computer on your right side on the table.

40.A ladder to go up stair curved on the right side should be divided into two parts.

It should be constructed leaving north-east or south-west direction. Ladders stepping down towards north or west creates waste of Lakshmi.

41.One should never hoard stale food, withered flowers, torn clothes, waste paper, waste materials, empty tins, old jars and useless things. These things prevent Lakshmi from entering the house.

42.If there is marble flooring in the house you should see that the old leather shoes are not lying here and there. Marble is considered to be holy stone. If possible avoid marble in bedroom, bathroom, latrine.

43.In a place of worship in the house it is necessary to have open atmosphere. Use marble in the worship room. Take care that there is enough light and air. Latrine should not be near worship room. Keep cleanliness and always light incense sticks.

- * Construct your house in such way it admits bright light into the main doorway
- * It is really advisable to allow 5 doors of a maximum opening
- * Setting television in the bedroom area is not recommended
- * Keep the plants and water sport far from your bedroom
- * Never split bed sheet and bed mattresses
- * Set your house furniture in the form of circle, square or as octagon
- * Keep the corners bright
- * It is good to fix an image of bright sun in the southern wall of the living area
- * Construct your bedroom, where wind must blow from south to west
- * Your house dining hall must never get exposed to the entrance door of the house
- * Setting a mirror in the kitchen room is not recommended
- * Do not place the mops and brooms in the kitchen. Keep it far aside
- * It is good to keep the doors of your toilet and bathroom closed most the time
- * It is good to set your windows opened towards out face

- * Growing of pricking plants like cactus in your house is not advisable and recommended
- * It is good to place the fish aquarium in the southeast corner in your living area
- * It is good to stick a happy family photograph or picture inside your living room
- * Growing of high trees such as Bangan, Thorny trees and Pipal is not good and recommended
- * Ensure that the lift gate is not set in face of the entry main gate of your house
- * Building your house rooms in shape of oval, or circle or triangle is strictly not advisable
- * Your house should never be in disturbed by any obstructive buildings
- * Ensure that your house is good with right air circulation and water source
- * Your latrine seat must be kept facing towards northern south
- * It is good to sit facing the doorway, while you sit in your office
- * It is good to set a mountain wallpaper behind you in your office
- * Never keep a ladder that faces towards west or north, as it makes waste of money
- * Never wear torn clothing, withered flowers, as these will prevent the goddess Lakshmi entering into the home

Vaastu Shanti tips for business and Office.

Money and valuables should be kept in an Almirah or safe facing north.

-If north is blocked it can be cured with the help of regulators.

-A boring or tube well in south is very harmful for finance.

-A pit or under ground tank in south is also very harmful for finance.

-Certain pictures of god goddess and proper placement of mirrors brings financial gains in the house.

-Water flowing from north to east is very good.

-A water fountain in the north east part of the house or factory is very good.

-An aquarium with 9 gold fish and one black fish, in the north east corner/portion of the house or factory is very good.

-In the office, the temple should not be placed at the back of the owner's seat.

-The owner seat must be facing east or north. West is also permissible but it must not face south.

- There must always be a solid wall behind the owner's seat.

-The owner's desk must always be rectangle.

-The central point of a factory, house and office should be empty.

-Vaastu Shanti Tips for Offices/Businesses.

- In the office, the temple should not be placed at the back of the owner's seat.
- The owner seat must be facing east or north. West is also permissible but it must not face south.
- There must always be a solid wall behind the owner's seat.
- The owner's desk must always be rectangle.
- The central point of a factory, house and office should be empty.
- * The place of seat arrangement for managers, executives and directors must be located in south, west and southwestern direction of the office premises
- * As per the Vastu principles it is really good to set the accounts department in southeast direction.
- * The appropriate place to set the reception is in the northeastern direction of the office.
- * With respect to Vastu principles, it is good to seat the employees facing the north or eastern direction
- * The central portion of the office must be set empty
- * As per the Vastu principles, it is good to place rectangular desk for the MD
- * Placing bore-well or fixing tank in the direction of south is not really recommended. This will affect the owner with less and insufficient cash flow.
- * The best and right direction of keep the storeroom is on the northwest and southeast location.
- * It is recommended to set the marketing department in the direction of northwest
- * Fixing of some idols or images of god and goddess in the right location of mirrors will bring you improved financial gains.
- * Setting a water fountain in the location of northeast of the office premises is really good and recommended.
- * Placing an aquarium containing 1 black fish and 9 gold fish in the location of northeast of the office premises is really good and advisable.

Vastu dosha remedies...

- 1) Ganesh pooja, Navagrah shanti & pooja of Vastu purush.
- (2) Navachandi Yagya, Shantipath, agnihotra yagya.
- (3) Vastu purush idol, Nag (snake) made of silver, copper wire, pearl and powla. All these items to be put in a red cloth with red earth and keep that in East direction.
- (4) Red sand Cashew Nut, Powla in red cloth - keep that in West direction on Tuesday and worship that with scented incense will bring peace in house.

- (5) Old buildings should be demolished after permission of Vaastu Purush by prayer.
- (6) During demolition - The Earthen Pot, Water, or Seat etc should not be taken home.
- (7) Daily worship the entrance step - worship with Swastik - Design of Earthenware Pot., Shubh-Labh etc. with Rice and Kumkum. Do not enter the house putting your entrance step.
- (8) Rakhshoghna Sukta jaap, Homa and anusthan should be done.
- (9) Recite this mantra 12500 times - starting from Tuesday - minimum 108 times daily till 12500 are over "Om Namoh Bhagvati Vaastu Devtaya Namah" - Do Dasamsa Home in the end.
- (10) Prayers to Vaastu Purush.
- (11) If South-West is cut or there is uneasiness in the family, do Pitru Shanti, Pindadan, Nagabali, Narayan Bali etc.
- (12) Do Rudri - Every Monday and Every Amavasyaday.
- (13) Keep photo or idol of Ganpati in house.
- (14) A pooja room in the house is must in every house.
- (15) Do not enter house for residence doing Navagrah Shanti.
- (16) The house which is vacant since some years should be taken in use after doing Vastu Shanti. After doing Vaastu Shanti – do not keep that house empty for more than 3 months.
- (17) Never keep underground cellar empty.
- (18) Do not keep South-West room vacant nor give it on rent.
- (19) In kitchen do not keep any Power - (Shakti) except fire & water.
- (20) Light a lamp daily evening near waterpot in the house.
- (21) Do Graha Shanti every year because we are doing many sinful things in our life.
- (22) If some river or drain is flowing in a direction other than the north-east direction of the house and has anti - clock movement, then place the statue of dancing Ganeshji facing the west on the north-east corner of the house.
- (23) If the boring has been done in the wrong direction in a house or a factory, then place the picture of Panchmukhi Hanumanji, facing South-East to the boring.
- (24) If a naked wall is seen while entering into a flat, then either a picture or a statue of Ganeshji should be placed there or a Shree Yantra. The naked wall is the sign of loneliness.
- (25) If high voltage overhead wires pass over a house, then a plastic pipe filled with lime should be erected from one corner to the other of the affected area in such a manner that its both ends

should remain outside by at least three feet each. This will eliminate the evil effects of energy being generated out of the overhead wire.

Vastu tips for peace and prosperity.

When sitting for worship, keep your face towards North-West and sit in that corner to intake air from that direction.

-Cash boxes can be located in the room towards the North (treasury). But if the box is heavy (such as a safe, heavy almirah) then it should be kept in the Southwest corner and the door of the almirah should open towards the North.

-TVs and computers should ideally be placed in the Southeast corner of the living room or study room. They should not be placed in the Northeast corner or Southwest corner.

- Telephones can be placed in the Southeast or Northwest corner but not in the Southwest or Northeast.

-An aquarium with 9 gold fish and one black fish, in the north east corner/portion of the house or factory is very good.

-If the north-east area is untidy or unshapely, the well being of male issues is found to be precarious.

-One should sleep with his head pointing towards the South.

-Students should be facing east while studying, for Academic Excellence.

-If the kitchen is off the proper place, some member or the other is always found to be suffering from severe digestive disorder.

-Keep the Gas in the south east corner of the kitchen

-Person should face the east while cooking.

-Drinking water should be in the north east of the kitchen.

-While Taking meals the plate should be in South-East.

-The statue of Hanumanji should not be placed in South-East. It may create fire hazard.

-All the doors should open inside so that the energy may remain inside.

-The hinges of doors should be noiseless. If so. The hinges may be greased periodically.

-The doors should open towards right hand.

-Bed should not be put under a beam.

-There should not be five corners in the ceiling of a room.

-Efforts should be made a leave the rooms open on North-East side.

- While ascending the staircase, the face should be either towards the north or the east.
- The seat of the toilet should face North-South.
- No doors or windows should be provided on South-West side.
- Almirahs and beds should be set very close to the South - West wall and at a distance from the north - east wall.
- A house should not have paintings, which depicts depressing scenes, i.e. like an old woman crying, scenes of war or poverty. It should have picture of say, a sunrise, an ocean, mountains, flowers or laughing children.
- Tall trees are nowhere recommended close to the main building. For trees the south in itself is good and so is the west. No tree should be grown in the north and the east. The one at the north-east is the worst.
- Small decorative plants and shrubs may be grown in the north and the east. The height should not exceed, say, half a meter at the north-east increasing gradually to not more than 1.5 meter as one moves from the north-east to the north-west or to the south-east end.
- Except rose and a few medicinal ones, all thorny plants give rise to tensions in the environment. Plants exuding white sap should also be kept off. Lime and karonda etc. are OK in an orchard but not in residence or business premises.
- Amongst the beneficial plants, the best is Tulsi. It is commendable to keep at least one Tulsi plant in the north-east area of the premises, but its height should not exceed 1.5 meter.
- Growing creepers/climbers with support on the compound wall or a house wall is best avoided.
- Cactus should not be planted or kept in the house.
- In the South-West Corner of the house one should sleep pointing his head towards south.
- If north of any house is blocked it blocks prosperity.
- Water flowing/water fountain from north to east is very good.

VaastuPurush.com: Defective Vastu

VaastuPurush.com: Defective Vastu: Problems Vastu Defects Feng Shui Defects

1) Blocked Money / Finances draining from your Business / Loans Relationship Problem...

WHAT IS CHANDA IN VAASTU SHASTRA?

After the **Selection of Site**, by applying the Vastu principles to the design of the building, one would be assured of a proportionate, aesthetic and beautiful building with the right

measurements. The Vastu principle '**Chanda – aesthetics/form**' describes the different forms or elevations of a building.

Chanda means 'Beauty'. So Chanda is the beauty aspect or **aesthetics** of buildings. Chanda in Vaastu literally means, a view of the contour of a structure against the sky, i.e. its perspective view. In ancient Indian architecture, the contours of buildings were different for buildings with different functions. The forms of different classes of buildings varied to satisfy different functions and they never were identical in appearance. According to Vaastu Shastra, adherence to Chanda would ensure an aesthetic looking building that is pleasing to the eye. Also, it ensured the easy identification of buildings (of different functions). For example, a temple can easily be identified by its mountain like form.

AAYADI - DIMENSIONS:

In Vaastu Shastra, a set of six formulae called Aayadi are used to work out the Length, Breadth, perimeter, area and the height of the building. According to Vaastu Shastra, it is necessary that one follows the Aayadi formulae strictly in order to experience positive effects within the building.

Aayadi constitutes six formulae Aaya, Vyaya, Yoni, Raksha, Vara and Tithi. The remainder obtained by using these formulae, determines whether it is gain or loss. If it is a gain, then the structure is proportionate and stable and the dimensions are right. However if it is a loss, then it means the dimensions are not right and should be suitably corrected.

- **Aaya-** is the remainder obtained when Length is multiplied by 8 and divided by 12
- **Raksha-** is the remainder obtained when Length is multiplied by 8 and divided by 27
- **Vyaaya-** is the remainder obtained when Breadth is multiplied by 9 and divided by 10
- **Yoni-** is the remainder obtained when Breadth is multiplied by 3 and divided by 8
- **Vara-** is the remainder obtained when Height is multiplied by 9 and divided by 7
- **Tithi-** is the remainder obtained when Height is multiplied by 9 and divided by 30

FIXING LENGTH OF BUILDING/ROOMS:

- Aaya and Raksha formulae are used to fix both the Length of the building and of the rooms.
- Aaya also known as 'aadhayam', means income and 'Vyaya' means loss or expenditure. Therefore, the Aaya should always be greater than the Vyaya.
- Using the Aayadi formulae it has been concluded that for the Aaya to be more than the Vyaya the length of rooms/building should preferably be 1.5 times the breadth or at least 1.375 times the width.
- This is why we find that sites are generally not square but rectangular with a Length 1.375 - 1.5 times the Breadth. For example: Sites have dimensions of 40 x 60, 30 x 40, 30 x 45, and 50 x 80.

FIXING THE BREADTH OF BUILDING/ROOMS:

- The Yoni and Vyaya formulae are used for fixing the breadth of the building.
- If the Yoni obtained is an odd remainder, then it is good whereas if it is even, then it is considered bad Yoni.
- 1, 3, 5 and 7 remainders are considered good Yoni and are associated with the directions East, South, West and North, respectively.
- Therefore depending on the direction the building faces, the corresponding Yoni should be used to fix the breadth of the building/rooms.
- The Yoni of the first floor should be the same as the Yoni of the ground floor.
- When an old house is being renovated, then a new Yoni different from the Yoni of the old house should be used for the renovated house.

FIXING THE DIMENSIONS DEPENDING ON THE ORIENTATION:

- The Yoni formula defining the breadth measurement is useful for buildings that are not oriented to the cardinal directions.
- Vastu Shastra clearly emphasizes the importance of orienting buildings towards the four cardinal directions (North, East, South or West) so that they can withstand the impact of monsoon winds and natural energies and also benefit from them.
- As far as possible, buildings should not be oriented to the intermediate directions.
- But in rare situations, if the site faces an intermediate direction, the Yoni formula should be used so that the remainder is 1. This will ensure that the dimensions of the building are such that it can withstand the forces of nature.

FIXING THE HEIGHT OF BUILDING:

- The height of the building can be fixed using the Vara and Tithi formulae.
- The height of the first floor should not be more than that of the Ground floor.

UNITS OF MEASUREMENT IN VAASTU SHASTRA:

In the olden days the units of measurement were the Angula ($\frac{3}{4}$ of an inch) and Hasta (18 inches) so that 1 Hasta equals 24 Angulas. However the value of Hasta and Angula were different in different regions. Therefore, by using the Aayadi formulae for fixing the dimensions of a building, the risk of creating disproportionate spaces is eliminated.

This post was about the Vaastu Shastra principle | Aayadi, which is useful for fixing the dimensions of a building. According to Vaastu Shastra, the shape/form of a building was related to it's function.

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This post was about the Vaastu Shastra principle | Aayadi, which is useful for fixing the dimensions of a building. According to Vaastu Shastra, the shape/form of a building was related to it's function. To know more about the different shapes/forms of buildings, read the 'Vaastu Shastra principle | Aesthetics'.

Vastu Shastra, the ancient Indian and medieval knack that deals with the subject of Vastu which means Environment. One may also regard Vastu Shastra as good practice of designing buildings and spaces that are free from metaphysical forces and conducts human life in harmony such that they will bring health, wealth and serenity to the inhabitants.

Vaastu Principles For Different Parts Of The House

The selection of plot is very important since it represents the form location and orientation of the house. These three factors further affect the radiation of positive as well as negative energies. So for the selection of a plot, these few factors must be considered-

- 477

- Shapes such as oval circular or semi-circular are not considered auspicious as this kind of plots tend to restrict the growth of an individual and also causes various health problems losses and lack of happiness in the house.
- Plot with either pathway on all four sides or plots with roads in north or east direction is considered the best options as they ensure good health, wealth and happiness for the residents.
- As per the Vastu Shastra, all the directions are considered good. The plot can face in any of the direction either on east west north or south. Each of the direction has its own advantages.

2. Vaastu Tips For Main Entrance Gate

Entrance is the gateway from which all the energies constantly enter or exit the house. Hence the position of this gate must be decided with utmost care so as to abstain the house from further problems.



- The best direction for the entrance gateway is north and east sides.
- Make sure that the entrance is free from any sort of trash or clutter to make the surrounding positive.
- Avoid placing any underwater or septic tank under the entrance gateway.
- The entrance should always be well lit as it invites positive energies.

3. Vaastu Tips Of Kitchen

Kitchen plays a vital role in maintaining the positive and negative energies in the house as it is the hub where all the energies prevail. So few things that must be considered are as follows



Fig. 116.—Interior of a Kitchen.—Fac-simile from a Woodcut in the “*Calendarium Romanum*” of J. Staëffler, folio, Tübingen, 1518.



- The best directions for the placement of kitchen are south-east or north-west. The south-east direction is governed by the fire lord hence it must be the first priority.
- Water sink must be placed in the northeast direction.
- There should be no toilets adjoining or above the kitchen.
- The door of the kitchen should never face the toilet.

4. Vaastu Tips For Living Room / Drawing Room

It is that part of the house where the members of the family spend most of their time and are also used to entertain guests as well as visitors. Hence this component of the house reveals whether the house bodes well with the family members or not. So to ensure that we need to take an account of the following considerations



- Colour walls with lighter shades as they promote calmness and affection.
- Make sure that the northeast corner of the living room/drawing room is clutter free.
- Use of potted plants and paintings related to nature or scenery not only enhances the tranquillity of the room but also generates positive energy.
- Keeping artificial flowers or dried flowers are considered inauspicious and also attracts misfortune.

5. Vaastu Tips For Bedroom

The bedroom is as important as the other parts of the room. It is that place where we relax and gather energy for the whole day. So, it is necessary to make sure that the room is in a favourable concord.



- The bedroom should not be in the south-east direction.

- Mirrors should not be located inside the bedroom as they lead to frequent quarrels amongst the members of the house.
- The bed should be located such that your head is towards the south or east direction as these directions bring good sleep and ensure long life.

6. Vaastu Tips For Puja Room

- The pooja room must be situated in the northeast direction of the house.
- Ideally there should be no idols in the pooja room. But if one wants to keep then the height of the idol should be from 9 to 2 inches.
- The worship rooms should have doors or windows on either north or east side.
- The colour of the walls should be lighter in shade for eg: white, cream, yellow, light blue.
- For the worshiping of fire lord the kund must be made in the southwest direction.
- A pooja room should not be made in a bedroom or a wall or adjacent to a bathroom wall.



7. Vaastu Tips For Bathroom

- A bathroom must be placed in the eastern portion of the house.
- A toilet should be constructed to the west of the building.
- Shower taps must be attached on the northern wall.
- If the toilet is attached along with the bathroom then the WC should be placed on the north-west side of the space.
- Overhead tank must be placed in the south west portion.
- Ventilator should be placed in the east or north direction



8. Vaastu Tips For Staircase

Most of the houses these days are multi storied so to bridge the gap between the two floors we need to build a staircase. So for that we need to first consider vastu shastra which would help us decide the shape size or direction of the stair.



- A staircase must be placed in the southern or western part of the house.
- External staircase can be placed in the southern direction facing the east direction of the house.
- A stair must not touch northern or eastern walls.
- The first stair must commence from north direction and end in the south direction.
- The number of stair should always be in odd digits.
- Circular stairs are considered inauspicious according to vastu as they can cause bad health.
- The space below the staircase can be used for storage but rooms such as bathroom, kitchen, or pooja room should never be built.

9. Vaastu Tips For Choosing Colors For Your Home

The colours must be chosen aesthetically as they can either enhance your mood or doze you off. Psychologists believe that the use of lighter colour can make us feel calm and relax whereas brighter colours can trigger our anger and sometimes one may even feel suffocated.

Colours like red orange and yellow are considered as bright colours which depicts boldness anger and warmth. Whereas blue, white, green, pastel and neutral colours are considered as light colours which depict coolness, calmness, peace and compromise.

North West Air/ Vaayu Dev (Lord of Air) Field Staff Visitors Store Room Pantry/ Utilities	North Kuber (Lord of Money) Reception Visitors Junior Staff	North East Shiva (Lord of Universe) Junior Staff Reception Visitors Pooja Cashier
West Varun (Lord of Rain/Water) Directors Managers Senior Staff	Center Brahma Dev (Lord of Creation) Lounge No Fixtures No obstacles	East Indra Dev (Lord of Devas) Junior Staff Computer Room Pantry/ Utilities
South West Narhatya Dev (Lord of Devils) Master Chamber No Pantry No Toilet	South Yam Dev (Lord of Death) Directors Managers Senior Staff	South East Agni Dev (Lord of Fire) Reception Visitors Accounts Dept Computer Room Pantry/ Utilities

10. Vaastu Tips For Basement

According to vastu any vacant space beneath the house or a building is considered as inauspicious but in case we want to have a basement then the following guidelines must be taken in account:

- Basement should be built in northern or eastern direction of the house.
- The purpose of basement can be for anything except for living purpose.
- Basement must be of regular or geometrical shape. Irregular shaped basement can cause health problems to the members of the house.
- About ¼ area of the basement must be above the ground level. As it allows space for better ventilation.
- Minimum height of the basement should be at least 2.5 meters.
- Dark tints of colour must be avoided for basement as it can attract negative energy.

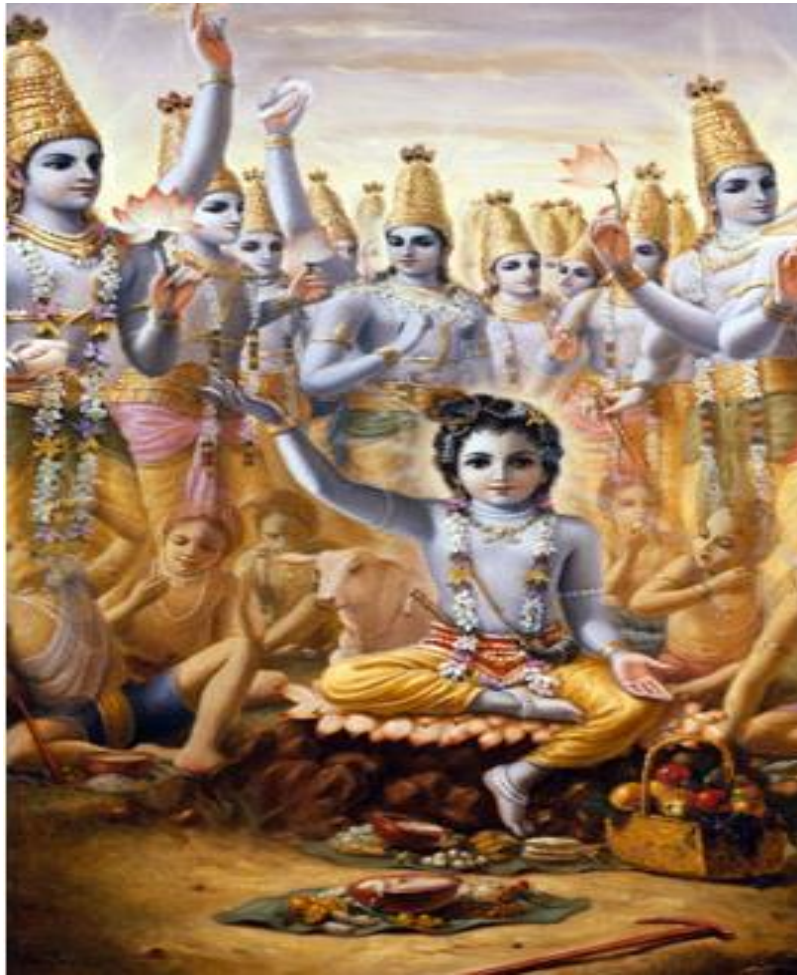
These were the few tips which would help in maintaining the tranquillity of the house and would surely help in gaining better health wealth and prosperity along with maintaining proper circulation and aesthetics of the house

25 VAYU	26 NAGA	27 MUKHYA	28 BHAL-LATA	29 SAUMYA	30 MRGA	31 ADITI	32 UDITI	1 ISA
24 PAPA-YAKSMA	RUDRA-JAYA						MITRA-JAYA	2 VATAPAR-JANYA
23 SOSA		RUDRA	PRTHIVIDHARA			APA-VATSA		3 JAYANTA
22 ASURA		M I T R A	BRAHMA			A R Y A M A N		4 MARUTA
21 VARUNA								5 MAHEN-DRA
20 PUSPA-DANTA								6 SATYAKA
19 SUGRIVA		INDRA	VIVASVAT			SAVITRI		7 BHRISA
18 DAU-VARIKA	INDRA-JAYA						SAVITRA	8 ANTA-RIKSA
17 NIRRTA	16 MRSA	15 BHRINGA-RAJA	14 GAND-HARVA	13 YAMA	12 GRHAK-SATA	11 VITATHA	10 PUSAN	9 AGNI

CHAPTER XIX

Brahma Kamal (Saussurea obvallata) – Fact and Fiction of this Celestial Plant





Krishna Sitting on a Brhama Kamal(Fantasy Art)

Introduction: Humankind in the state of flux. We would never know what this realm has to offer. It has many secrets that are not to be touched and which are made by a power that cannot be described nor challenged but felt. Mysteries give birth to curiosity, leading to discover. But we are so little of to reveal what the judges of nature have in store, one of them being the **‘Brahma Kamal.’**

The citation of the name ‘Brahma Kamal’ is found in the Puranas. According to Hindu mythology, Brahma was born from a huge white lotus called the ‘Brahma Kamal’. The birth of

Hindu god – Ganesha is also associated with it. Even, in our epics like Ramayana and Mahabharata, we find references to Brahma Kamal as a holy flower.

Brahma kamal is a medicinal herb. Brahma Kamal is a type of cactus, it does not need too much water. One can water it once in two to three days unless the place of its location is a dry place. Over watering kills it. The flowers have large pure white star-like flowers with lovely fragrance to help them pollinate and can be located easily as they blossom by moon or star light. The flower starts blooming after sunset from 7 p m onwards and takes about two hours to full bloom, about 8 inches in diameter and remain open through out night.



Saussurea obvallata is a species of flowering plant in the Asteraceae. It is native to the Himalayas, Himachal Pradesh and Uttarakhand, India, Mongolian, northern Burma and southwest China. In the Himalayas, it is found at an altitude of around 4500 m. It is the state flower of Uttarakhand. *Saussurea obvallata* is a perennial growing to 0.3 m (1 ft). The flowers are hermaphrodite (have both male and female organs) and are pollinated by insects. Flowers bloom in mid-monsoon (July–August) amongst the rocks and grasses of the hillside at an altitudinal range of 3000–4800 m. Flower heads are purple, hidden from view in layers of yellowish-green papery bracts, which provide protection from the cold mountain environment. The flowers can be seen till mid-October, after which the plant perishes, becoming visible again in April. Local names of this flower are Brahma Kamal, Kon, Kapfu and vansembruu.

Brahma Kamal – the spiritually revered, scientifically ignored medicinal plant bestowed with rich botanical wealth. The plant holds immense sacred value in the region. Being regarded as a spiritual flower, it is offered to Lord Vishnu at Badrinath shrine and Lord Shiva at Kedarnath

shrine. In September/October, during the festival of Nanda Ashtami, Brahma Kamal is offered in temples and also distributed as 'prasada'. According to folklore in Hindu mythology, Brahma Kamal was created by Lord Brahma to help Lord Shiva place the head of an elephant on the body of Lord Ganesha. The flower dropped 'Amruta' – the elixir of life from its petals on the body. It is also believed that on the revival of Lakshmana using Sanjeevani, the Gods showered Brahma Kamal from heaven in celebration. Hence, Brahma Kamal fell to earth and took root in the Valley of Flowers. Besides religious value, the plant is extensively harvested by local people for preparation of traditional ayurvedic medicines. The flowers, rhizomes and leaves are used for treatment of bone ache, intestinal ailments, cough/cold and urinary tract problems. The rhizomes in particular are used as antiseptic and for healing cuts and bruises 4–6 . In the Tibetan system of medicine, the plant is used in the treatment of paralysis of limbs and cerebral ischaemia 7 . However, no pharmacological and pharmaceutical studies have been made till date creating a lacunae in scientific verification of the medicinal use of the species. Despite its traditional medicinal use, the plant has a neglected status in the scientific community. Till date there has been neither an effort to conserve the germplasms of Brahma Kamal nor a focused research approach to document and evaluate true clinical potential of the species. Consequently, illicit and unscientific harvesting, constraints in conven-
Figure 1. Brahma Kamal plant in flowering.¹

Confusion regarding Mythology: In Hindu drawings Brahma is seen sitting on a pink flower that resembles a lotus (Sanskrit: कमल), which is India's national flower. Hence people claim that the pink flower of *Nelumbo nucifera* is the Brahma Kamal. However others claim the flower on which he is sitting, and which resembles a lotus is sprouted from the belly button of Lord Vishnu. The flower which Brahma is holding in one of his four hands, a white flower resembling *Saussurea obvallata* is the Brahma Kamal. There are people who claim that the flower of *Epiphyllum oxypetalum*, the orchid cactus, which blooms at night, is the Brahma Kamal. Some North Indians claim that the flower of *Saussurea obvallata* is the Brahma Kamal.

The Lotus of Brahma: The name of this magical flower can be translated to mean, 'The Lotus of Brahma'. Lord Brahma, the creator of the Universe, is always depicted as sitting on a huge lotus and holding one in his hand. Another name for Lord Brahma is Kanja or the one born out of the water. So, schools of thought say that Brahma was born from the navel of Lord Vishnu while others say that he was born from a huge white lotus that we call the Brahma Kamal. In Hindu mythology Brahma kamal is believed to have divine powers, being regarded as spiritual flower it is offered to Lord Vishnu at Badrinath shrine and Lord Shiva at Kedarnath shrine.

There are some beliefs which connects this holy flower to Hindu mythology-

- Brahma Kamal was created by Lord Brahma to help Lord Shiva place the head of an elephant on the body of Lord Ganesha.
- It is also believed that on the revival of Lakshmana using Sanjeevani, the Gods showered Brahma Kamal from heaven in celebration.
- Brahma kamal is related with the story of how Brahma emerged from Vishnu's naval in a lotus flower.
- In Hindu drawings Brahma is seen sitting on a pink flower that is resembling lotus (Sanskrit:Kamal), which is Indian National flower. Hence people claim that the pink flower of *Nelumbo nucifera* to be Brahma Kamal.

Ganesh Birth: The story of the birth of Ganesha is a popular one. On Parvati's request Brahma created Brahma Kamal, with whose help Shiva placed the head of an elephant on to the body of Ganesha. When Shiva attached the head of an elephant on Ganesha's body, he was bathed with water that was sprinkled from a Brahma Kamal. That is why this lotus is given the status of a life-restoring flower of the gods. To evaluate it in terms of modern science, this flower has many medicinal properties.

The Golden Lotus: When the Pandavas were in exile in the forests, Draupadi accompanied them. She was constantly tormented by painful memories of her insult in the Kaurava court. The hardships of a forest life also took its toll on her. One evening she saw a beautiful lotus float away in the stream. After she saw this 'golden' lotus bloom, she felt a strange happiness that was almost spiritual. But the lotus withered as quickly as it had bloomed. Draupadi sent her most devoted husband Bhima to look for it and on his quest for the flower he met Hanuman (Bhima's elder brother). As a lotus is usually pink, 'golden' may mean a shimmering 'white'. This story too is a reference to this mysterious flower. **Wish Fulfilling:** It is long held belief that anybody who sees this rare flower blooming will have all his or her wishes fulfilled. It is not easy to watch it bloom because it blooms in the late evening and stays only for a couple of hours.

Ramayana: Similarly in Ramayana when the Sanjivani herb was administered to Lakshmana, he miraculously revived. In celebration, God showered flowers from heaven, which fell to the earth and took root in the Valley of Flowers. So it is called Brahma Kamal. Brahma Kamal native to Uttarakhand, India, northern Burma and southwest China is also known as *Saussurea Obvallata*, it has 31 varieties learned by Botanist. Its white stamen is believed to represent Lord Krishna, while the brown stalks represent 100 Kauravas from the Mahabharata.

Medicinal use of Brahma kamal: The people of India have probably the oldest, richest and most diverse cultural traditions in the use of medicinal plants. At higher altitudes of the Western Himalayan ranges (extending from ca. 500 m to snow-clad peaks), a variety of important and endemic medicinal plants are found, making it a biodiversity-rich region. Records indicate that these medicinal herbs have been in use for treating diseases since ancient times. The advent of herbal renaissance in recent times has led to heavy extraction of these medicinal plants from the wild. This, aided by loss of habitat by deforestation and excessive grazing pressure in high-altitude pastures in the entire Himalayan region threatens the survival of some important medicinal plants, one of them being our Kamal. Brahma Kamal is considered a medicinal herb in Tibetan medicine, where it is named ཤཱུད་གོ་མུ་ (Sah-du Goh-ghoo). It is used to treat urogenital disorders, liver infections, sexually transmitted diseases, bone pains, and cold and cough. It has a bitter taste and the entire plant is used. Flower heads are purple, hidden from view in layers of yellowish-green papery bracts, which provide protection from the cold mountain environment. The flowers can be seen till mid-October, after which the plant perishes, becoming visible again in April. In Uttarakhand, Brahma Kamal is found in the regions of Kedarnath, the Valley of Flowers, Hemkund Sahib and Tungnath. Brahma kamal is very useful plant in perspective of traditional ayurvedic medicines some of its medicinal uses little known to common world but largely used by the natives residing in Himalayas-

- The flowers, rhizomes and leaves are used for treatment of bone ache, intestinal ailments, cough/cold and urinary tract problems.
- The rhizomes in particular are used as antiseptic and for healing cuts and bruises.
- In the Tibetan system of medicine, the plant is used in the treatment of paralysis of limbs and cerebral ischaemia.
- The stem is also used medicinally to cure dropsy and cardiac affections.

There is lack of research in true clinical potential of plant despite Many doctors find that this plant has strong antiviral properties.

Bloom and Doom of Brahma kamal-

Another story is that the blooming of Brahma kamal is a rare occasion it is observed that it only blooms once in 14 years and blooming remains only few hours. If video recording of blooming is performed one can experience a very pleasant and soothing music in complete silence. As its blooming is rare, people invite their friends and relatives to cherish watch this wonderful and special event.

Misconception about Brahmakamal-

There are many misconceptions about this flower it is often misconceived with another plant named *Epiphyllum oxypetalum* (Orchid Cactus) which in fact is found in the Americas particularly in Mexico.



The Brief Reign Of The 'Queen Of The Night' Orchid Cactus, ABBY WENDLE • 2015

The scientific community recognizes a man named A. P. de Candolle for first discovering the plant in 1828. In the nearly two centuries since, its beauty has been mythologized by epic poets and its essence bottled.

While most plants flower for weeks, orchid cacti only blossom for a few short hours a year, and always at night. Botanists name it *Epiphyllum oxypetalum*, but the plant's elaborate, nocturnal mating dance has earned it the nickname of "Queen of the Night" or "Lady of the Night." The orchid cactus flowers in hopes of reproducing. Its strong, sweet smell meant to draw pollinators, like birds and bugs, close. When it opens up, one can smell it. Like, this whole area will smell like this flower. This particular Lady of the Night lives a solitary life, rooted in a small pot under the shadow of an umbrella tree. But tonight is its one chance to do what it was meant to do: spread its seeds.

Some cultures claim orchid cactus stem extract works as a cough suppressant, while others cook the petals into a soup that's assumed to be an aphrodisiac. In Southeast Asia, it's revered as a sacred home to the Hindu god Brahma and it's believed if you pray while it's blooming, your prayers will be answered. In the U.S., the plant is popular among gardeners (scroll halfway down the page) who invite friends over for bloom night, pour wine, and watch.

"The stem that the flower is on literally hooks up. Hooks like a shepherd's hook," she says. "And right now, the flower is so heavy that it's just laying on the floor." In its native habitat, stretching from the subtropics of Mexico to the rainforests of South America, the orchid cactus would never touch the ground. Instead, it clings to the branch of a tree forty to sixty feet up where it can grow 20-feet tall, wrapping its roots around the tree's trunk and feeding on sunlight, rain, and air.

Next, the flower's central blossom balloons and its wide, opal petals start to unravel. By full bloom, they'll stretch to the size of a dinner plate, revealing a beaming white, almost iridescent, center. At this point, the blossom is literally throwing off heat; its warmth a siren's call to the forest's hummingbirds, bats, and moths.

If the orchid is lucky, one of these nighttime flying creatures will be covered in pollen from another orchid cactus. As the creature dips into the base of the petals for a sip of nectar, the pollen will brush off on the flower's frilly stigma and trickle down a long tube, called the pistol, into the flower's center, fertilizing the tapioca-like embryos inside. Then, the plant can bear forth a big red fruit, filled with orchid cactus seeds.

Brahma kamal an Endangered Plant:

According to the Conservation Assessment Management Plan (CAMP) plant is categorised as endangered. plant is ignored by scientific authorities as well as by state government of uttrakhand where it has been declared as state flower. As the whole plant of Brahma Kamal is used for medicine, it becomes more prone to extinction, calling for immediate conservation strategies for this top-ranking priority species. Conservation measures should begin with the establishment of nurseries in areas adjoining natural habitats wherein conventional methods of propagation can be tried. This has to be done in conjunction with sensitization of local people to control overexploitation of the species. Simultaneous efforts in the R&D sector to establish pharmaceutical potential of the species can hence be utilized to make the local people aware of its value.



REFERENCES

Brahma Kamal – the spiritually revered, scientifically ignored medicinal plant, Prabhakar Semwal, https://www.researchgate.net/publication/259308185_Brahma_Kamal_-_the_spiritually_revered_scientifically_ignored_medicinal_plant2013



<i>Saussurea obvallata</i> Scientific classification	
Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Eudicots
(unranked):	Asterids
Order:	Asterales
Family:	Asteraceae
Tribe:	Cynareae

Genus: *Saussurea*

Species: *S. obvallata*

Binomial name

Saussurea obvallata

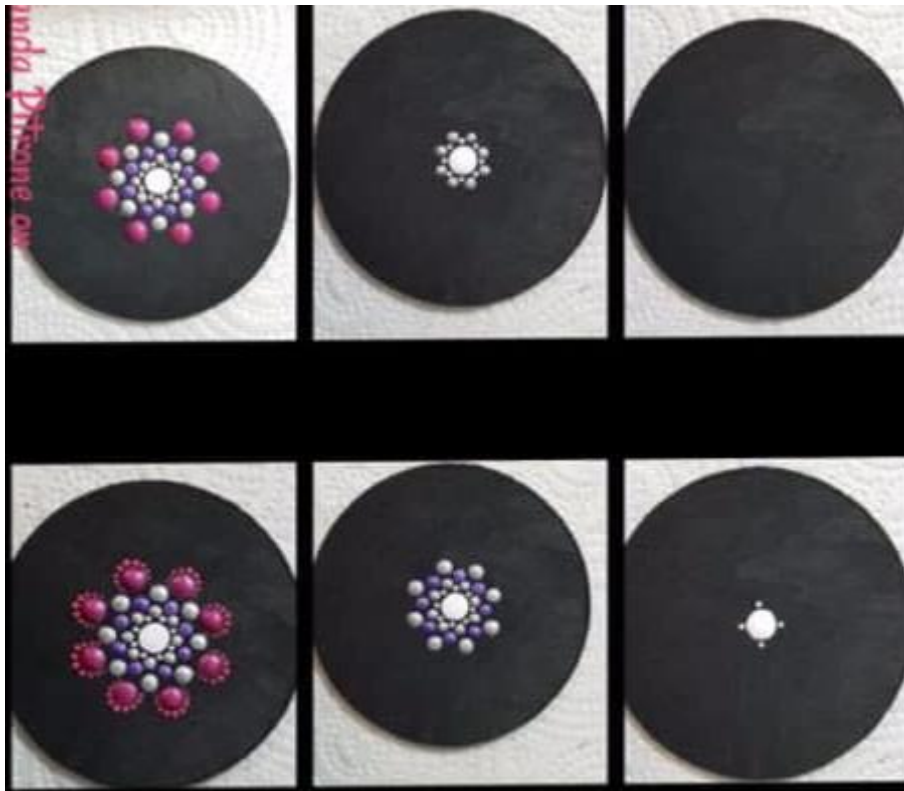


CHAPTER XX

The MANDALA OF LINES, DOTS IN Hindu and JAIN ARCHITECTURE

Dot or Tilak, Sanskrit *tilaka* (“mark”), in Hinduism, a mark, generally made on the forehead, indicating a person’s sectarian affiliation. The marks are made by hand or with a metal stamp, using ash from a sacrificial fire, sandalwood paste, turmeric, cow dung, clay, charcoal, or red lead. Among some sects the mark is made on 2, 5, 12, or 32 parts of the body as well as on the forehead. Among Shaivas (followers of Shiva), the *tilak* usually takes the form of three horizontal parallel lines across the forehead, with or without a red dot. Sometimes a crescent moon or trident denotes a Shaiva. Among Vaishnavas (followers of Vishnu), the many *tilak* variations follow a general pattern of two or more vertical lines resembling the letter *U* and representing the foot of Vishnu, with or without a central line or dot. In Hinduism, Buddhism, and Jainism, bindi is associated with Ajna Chakra and Bindu. In Hindu metaphysics, Bindu is considered the point at which creation begins and may become unity. It is also described as "the sacred symbol of the cosmos in its unmanifested state". Bindu is the point around which the mandala is created, representing the universe. The DOT is a mini Circle.

<https://rockpainting101.com/wp-content/uploads/2019/03/Dot-Mandala-Rock-Painting-Tutorial->



Bindu is often merged with [seed] (or sperm) and ova. In the *Yoga Chudamani Upanishad* Bindu is a duality, with a white Bindu representing *shukla* (pure) and a red Bindu

representing *maharaj* (mastery). The white Bindu resides in the *bindu visarga* and is related to Shiva and the Moon, while the red Bindu resides in the *muladhara* chakra and is related to Shakti and the Sun. In yoga, the union of these two parts results in the ascension of kundalini to the sahasrara. In Tibetan Buddhism Bindu is a component of the subtle body, which is composed of drops and winds .

Marks worn by women on the forehead (most commonly a red dot for unwidowed women) may indicate sect affiliation, but more frequently they vary according to the fashion prevailing in a particular part of India.

The Sanskrit literature dealing with architecture is spread all over India. A few of the commonly known texts are Manasara, Rajavallabha, Samarangana Sutradhara and Mayamatam etc. Apart from these many more texts in Sanskrit and regional languages also exist. Ancient literature says that the function of these mythical lines is to define open spaces. These lines now made into pillars form semi transparent screen in *Mandapas* and marked a transparent volume for subdivided spaces that unifies the garbhagira from behind it, together with the beams and entablatures they formed a 3d framework defining volume and space, the garbhagirha get their light and ventilation from these *Mandapas* and therefore have very few openings onto the exterior of it. Screening of light patterns due to these pillars also give essence of volumetric spaces at different point of day in different ways which creates outstanding examples of spaces to provide well articulated shelters with the surroundings and the spatial order of a building complex as to provide the most strategic location for a good view, fresh air and general comfort for gatherings or for pleasure.

The Importance of straight lines: Lines are an essential building block in our visual vocabulary. Combined with shapes, color, value, texture, space, and form they give us a visual grammar which we can use to communicate.

They seem simple. You didn't need me to tell you what a line is when you started reading this post and yet here we are some 2,000 or so words later and we've barely scratched the surface of what lines can do. If we wanted them to, lines could create the surface and represent the scratch.

Something as simple as a line can have an endless combination or variety and through that variety convey *different meanings, concepts, themes*.

Even more when we combine lines into patterns we can convey additional information and meaning. we can use lines to create textures and shapes, which leads us to the next post. Just as Color is one way we communicate visually. Dot or lines is one of the *building blocks* of *visual grammar*, which are usually *defined to include*:

- lines
- shapes
- color
- texture
- value
- space

- form/volume/mass

The Grammar of Lines

A line is a dot out for a walk.

—Paul Klee

A line connects two points. It's also the path made by a moving point. Lines can be thick or thin. They can be long or short. They can be vertical, horizontal, or diagonal. They can be solid or dotted or dashed. Lines can be curved or straight or combinations of both. There's an endless variety in what we think of as a line.



Lines can be literal or implied. Draw a series of 3, 4, or 5 points and your mind will fill in the line between them. Each of the different ways we draw or represent a line gives it unique characteristics. Thick lines convey a different meaning than thin lines. A curved line sends a different message than a sharp straight line.

Types of lines

There are several *types of lines* defined by their use.

- **Contour lines** are used to define edges. They create boundaries around or inside an object. Most lines you encounter are contour lines. In web design these could be the borders you add around an object or group of objects
- **Dividing lines** can also define edges, but what distinguishes them from contour lines is they divide space. The lines between columns of text are dividing lines as are the lines separating menu items.
- **Decoration lines** are used to embellish an object. Cross-hatching is an example of using decoration lines to add shading and form to an object. The line beneath linked text is a decorative line as are the lines used to create a *floral background image*
- **Gesture lines** are quick and rough continuous lines *used to capture form and movement*. They are generally used when studying the shape and motion of the human form. You likely won't use gesture lines (based on the technical definition) in a web design, but you could certainly create patterns of lines to signify motion or build up a form..

Thin lines are fragile. They appear easy to break or knock over. They suggest frailty and convey an elegant quality. They are delicate and give off an ephemeral air.

Thick lines on the other hand appear difficult to break. They suggest strength and give emphasis to nearby elements. Thick lines are bold and make a statement.

Horizontal lines are parallel to the horizon (hence the name). They look like they're lying down, at rest, asleep. They suggest calm and quiet, a relaxed comfort.

Vertical lines are perpendicular to the horizon. They are filled with potential energy that could be released if they were to fall over. Vertical lines are strong and rigid. They can suggest

stability, especially when thicker. Vertical lines accentuate height and convey a lack of movement, which is usually seen as horizontal.

They stretch from the earth to the heavens and are often connected with religious feelings. Their tallness and formality may give the impression of dignity.

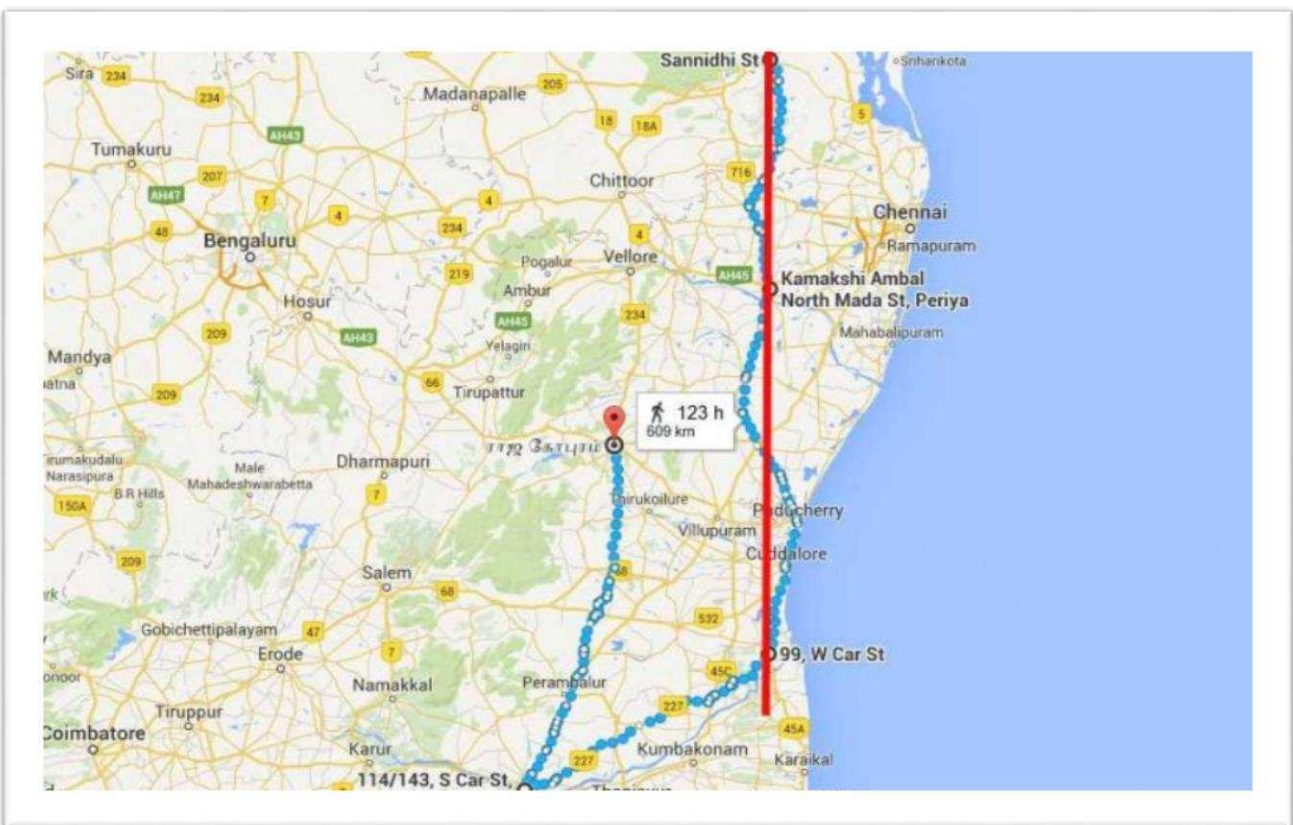
Diagonal lines are *unbalanced*. They are filled with restless and uncontrolled energy. They can appear to be either rising or falling and convey action and motion. Their kinetic energy and apparent movement create tension and excitement. Diagonal lines are more dramatic than either horizontal or vertical lines. Diagonal lines can also appear solid and unmoving if they are holding something up or at rest against a vertical line or plane.

Curved lines are softer than straight lines. They sweep and turn gracefully between end points. They are less definite and predictable than straight lines. They bend, they change direction. Curved lines express fluid movement. They can be calm or dynamic depending on how much they curve. The less active the curve the calmer the feeling.

Zigzag lines are a combination of diagonal lines that connect at points. They take on the dynamic and high energy characteristics of diagonal lines. They create excitement and intense movement. They convey confusion and nervousness as they change direction quickly and frequently. They can imply danger and destruction as they break down.

In Hinduism, Lord Shiva is regarded as the representation of the Supreme Being. He is known as the third element in the Hindu Trinity (Trimurti), the other two members being Lord Brahma – the creator and Lord Vishnu – the protector. He controls the 5 elements of nature named as the Pancha Bhoota – Earth, Water, Fire, Air and Space. Pancha Bhoota Stalams In South India, five temples were built for each representing the manifestation of the five prime elements of nature. Known as Pancha Bhoota Stalam, these temples are dedicated to Lord Shiva. Five elements of nature, in these temples, are believed to be manifested in the form of five Lingams, the divinity of Lord Shiva. Each lingam of Shiva is known by the name of element represented by them. ‘Pancha’ indicates Five, ‘Bhoota’ means elements and ‘Stala’ means place. All these temples are located in South India.

The temple for water is in Thiruvanaikaval, fire is in Thiruvannamalai, air is in Kalahasti, earth is in Kanchipuram and The temple for space/sky is in Chidambaram. Geographic specialty The five temples were built according to the yogic sciences, and are placed in a certain geographic alignment with each other, so that the entire region reverberated with the possibility they offered. Three of the five Pancha Bhoota Stalam temples stand on a straight line exactly at 79 degree 41 minutes East longitude. Chidambaram Natrajana Temple, Kanchipuram Ekambareswarar Temple, Srikalahasti Temples are aligned Exactly in a straight line Positions



All 3 temples are constructed at least 1000 years ago. No satellite technology was available at that time but very accurate placements. Truly an engineering, astrological and geographical wonder. Of the other two temples, Thiruvanaikkaval is located at around 3 degrees to the south and exactly 1 degree to the west of the northern tip of this divine axis, while Thiruvannamalai is around midway (1.5 degree to the south and 0.5 degree to the west).

west). The five grand temples associated with the five basic elements are:

1. Earth – (Prithivi) – Kanchipuram – Ekambareswarar Temple (12.847604, 79.699798)
2. Water – (Neer) – Thiruvanaikkaval – Jambukeswara Temple (10.853383, 78.705455)
3. Fire – (Agni) – Tiruvannamalai – Annamalaiyar Temple (12.231942, 79.067694)
4. Wind – (Vayu) – Chittoor – Srikalahasti Temple (13.749802, 79.698410)
5. Sky – (Akasha) – Chidambaram – Chidambaram Nataraja Temple (11.399596, 79.693559)

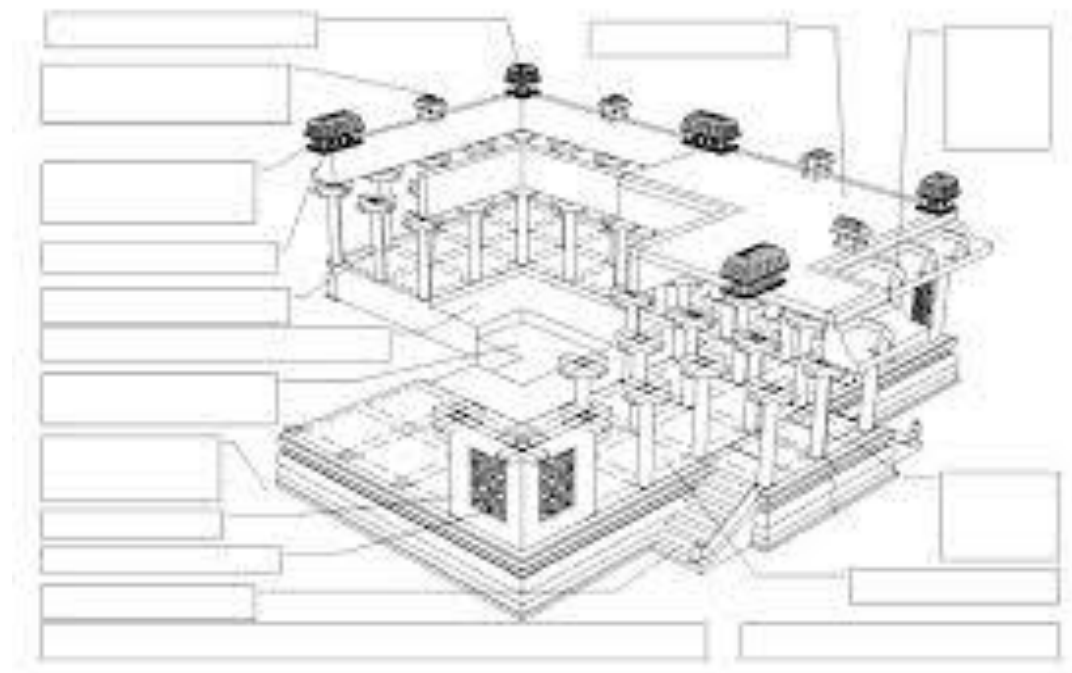
A flickering lamp in the SriKalahasti temple shows the play of wind, the water spring in the innermost sanctum of the Tiruvanaikka temple shows the temple's relationship to the element water, the annual Kartikai Deepam festival at Tiruvannamalai where a giant lamp is lighted atop the Annamalai hill shows the Annamalaiyaar's manifestation as fire, the swayambhu lingam of sand at Kanchipuram signifies the deity's association with the earth while the formless space at Chidambaram shows the association of the Supreme being with formlessness or nothingness.

As per Dr. Dagens, "In the extensive and widely disseminated range of works in this area, the Mayamatam occupies a fairly well defined place" The Mayamatam (edited and translated by Dr. Bruno Dagens) referred in this research is in two volumes with a total of 36 chapters and an appendix. Volume I have 22 chapters and the remaining 14 chapters and an appendix (descriptions regarding locations of wells) are in volume II. It is a large text comprising of 3336 verses. The chapters can be classified under areas of town planning, residential architecture, religious architecture, religious rituals, iconography, interior design, renovation work, vehicle design, etc.

The chapters relating to architecture and planning are from 1 to 30 having 2626 verses in all and deals with various buildings independently such as residential architecture, temple architecture, pavilions and their details about system of measurements, parts and elements, proportions of these parts and elements in plan and elevation, decorative elements, material specifications, technical information etc. Out of these buildings the scope of the study is limited only to selected verses on architecture of Pavilions as these have the broadest horizon of understanding and utility. The scope of analysis can be in terms of materials quality, textures, colors, proportions, etc but the research is limited to geometric proportional analysis of pavilions in horizontal and vertical planes.

MORPHOLOGY OF MAYAMATAM PAVILION Temples, halls, houses, sheds and pavilions with inner court and palaces are referred as buildings. A pavilion is made up of permutation and combination of a number of components and parameters.

A pavilion normally has three levels of elevation. These three levels are *adhishtana* (base or plinth), *stambha* (pillars) and *prastara* (entablature). The pavilion could also be like a temple or like a house, a storey added to the pavilion it results in a '*malikamandapa*' or storied pavilion. Other elevational elements are *kudya* (Wall/s), *jalaka* (windows), etc. The *prastara* (entablature) is decorated with a *Nasi* (false dormer window), *kuta* (Corner Aediculae), *panjar* (Intermediate Aediculae), *koshtha* (Elongated Aediculae) etc. The morphological repertoire of a pavilion is shown in Figure Below. An *upapitha* (socle) is an optional element in a pavilion. It is located below the *adhishtana* (base or plinth). The plan of the pavilion is composed of *angana* (central court), *ranga* (central platform), *jalasthala* (central water body), *alindra* / *varam* (walkway), *mandapam* (roof); various other covered / open to sky courts and water bodies, all of which are within the perimeter of the pavilion. The *bhadra* (forepart/portico/porch), *sopana* (steps) are also parts of the pavilion.

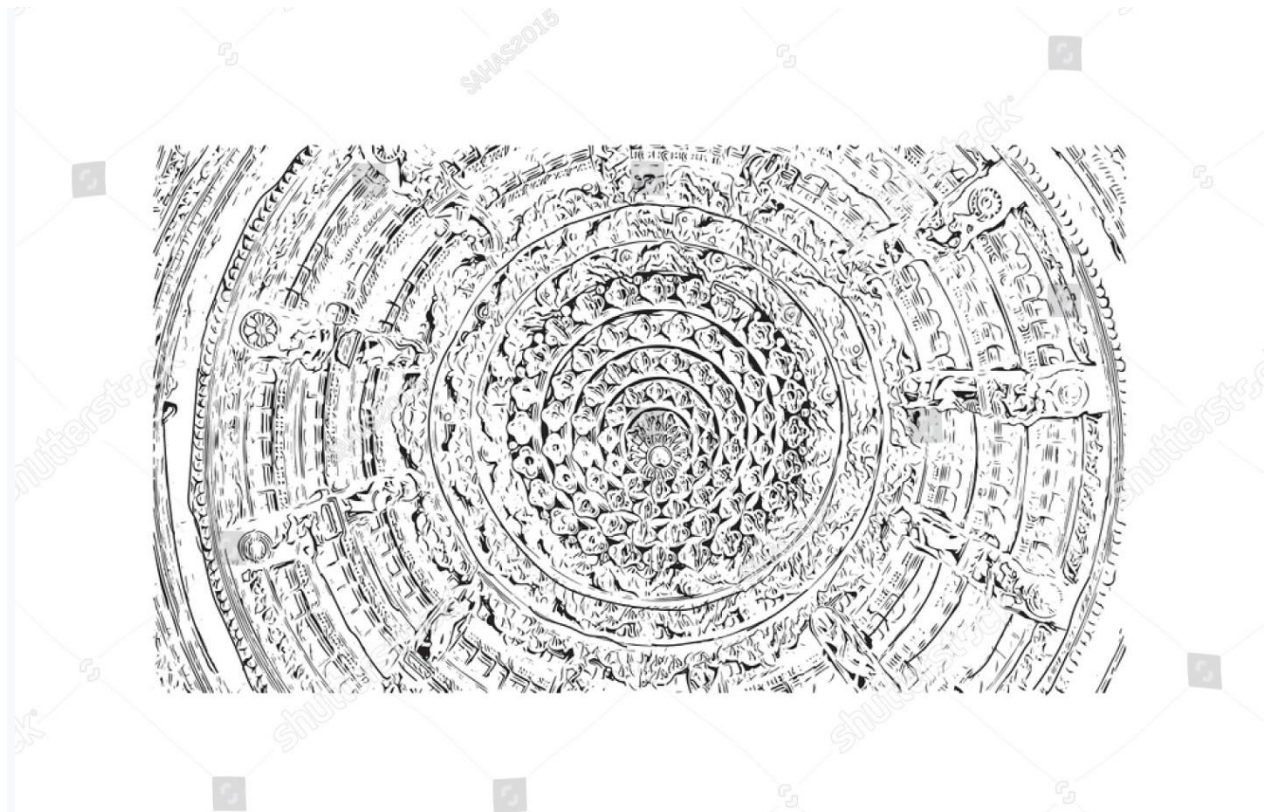


The temples were built by guilds of architects, artisans and workmen. Their knowledge and craft traditions, states Michell, were originally preserved by the oral tradition, later with palm-leaf manuscripts. The building tradition was typically transmitted within families from one generation to the next, and this knowledge was jealously guarded. The guilds were like a corporate body that set rules of work and standard wages. These guilds over time became wealthy, and themselves made charitable donations as evidenced by inscriptions. The guilds covered almost every aspect of life in the camps around the site where the workmen lived during the period of construction, which in the case of large projects might be several years.

The work was led by a chief architect (*sutradhara*). The construction superintendent was equal in his authority. Other important members were stonemason chief and the chief image-maker who collaborated to complete a temple. The sculptors were called *shilpins*. Women participated in temple building, but in lighter work such as polishing stones and clearing.^[40] construction

work, with some texts accepting all castes to work as a *shilpin*. The *Brahmins* were the experts in art theory and guided the workmen when needed. They also performed consecration rituals of the superstructure and in the sanctum.

In the earliest periods of Hindu art, from about the 4th century to about the 10th century, the artists had considerable freedom and this is evidenced in the considerable variations and innovations in images crafted and temple designs. Later, much of this freedom was lost as iconography became more standardized and the demand for iconometry consistency increased. This "presumably reflected the influence of brahman theologians" states Michell, and the "increasing dependence of the artist upon the brahmins" on suitable forms of sacred images. The "individual pursuit of self-expression" in a temple project was not allowed and instead, the artist expressed the sacred values in the visual form through a temple, for the most part anonymously.



VECTOR- Bent straight lines

The sponsors used contracts for the building tasks. Though great masters probably had assistants to help complete principal images in a temple, the reliefs panels in a Hindu temple were "almost certainly the inspiration of a single artist".

Schools of temple building tradition

Along with guilds, surviving texts suggest that several schools of Hindu temple architecture had developed in ancient India. Each school developed its own gurukuls (study centres) and texts. Of these, state Bharne and Krusche, two became most prominent: the Vishwakarma school and the Maya school. The Vishwakarma school is credited with treatises, terminology and innovations

related to the Nagara style of architecture, while the Maya school with those related to the Dravida style. The style now called Vesara bridges and combines elements of the Nagara and the Dravida styles, it probably reflects one of the other extinct schools.

Some scholars have questioned the relevance of these texts, whether the artists relied on *silpa sastras* theory and Sanskrit construction manuals probably written by Brahmins, and did these treatises precede or follow the big temples and ancient sculptures therein. Other scholars question whether big temples and complex symmetric architecture or sculpture with consistent themes and common iconography across distant sites, over many centuries, could have been built by artists and architects without adequate theory, shared terminology and tools, and if so how. According to Adam Hardy – an architecture historian and professor of Asian Architecture, the truth "must lie somewhere in between. According to George Michell – an art historian and professor specializing in Hindu Architecture, the theory and the creative field practice likely co-evolved, and the construction workers and artists building complex temples likely consulted the theoreticians when they needed to.



Straight Line interplay displayed in a 3D art

Temple architecture is a synthesis of engineering and decorative arts, where elements of architecture play an important part in giving it distinct identity. This synthesis of impeccable synergy between Structural innovation and Ornamental expression in pillars of *Vijayanagar* gave rise to new architectural language, huge *Mandapa* halls with hundreds and thousands of straight Pillars. Straight vs. Curved Lines in Architecture – the Importance of Forms for our Well-being are all part of the loving works of architecture which is, in a way, like loving people – some are cute, interesting, not too strange, and appear warm and friendly. They seem somewhat familiar and are easy to love from the first sight. Then there are others, who make a lousy first impression – they seem boring and cold, but when you get to know them, they grow on you. Even more, you fall crazily in love with them.

Straight lines and rectilinear shapes have a philosophy behind it, is not boring, but pure; not cold, but honest; and not depressing, but rather idealistic. Among other features postmodernists rejected, there were straight lines and angular forms. It has been stated over and over how much more compatible the free-flowing curved forms are to the human body and mind compared to

rectilinear forms of modern architecture. After all, there are no straight lines in nature. A great deal of organic (/green) architecture, which now seems to be more popular than ever, revolves around the idea that the application of curvilinear surfaces in architectural design has a positive effect on human emotions and well-being. Fortunately, there were psychologists intrigued enough to test this hypothesis.

The original architectural designs did not have any curved forms and were then altered in a three-dimensional computer-aided design environment (ArchiCAD) to introduce curvature in the architectural elements. The same view was changed in eight approximately equal steps, transforming from rectilinear to curvilinear while all other variables remain constant. With increased curvature were rated as more pleasant, elevating, relaxing, friendly, personal, safe, mysterious, complex, and feminine.

In a study it turned out that the correlation between curvature and positive appraisal was much weaker future architects see curvilinear forms dominantly as feminine. Their experience, knowledge and familiarity with straight lines could explain the smaller difference in response to straight and curved lines, compared to relatively big difference in lay-people sample. However, curvature still elicits more positive responses for them. Loving works of architecture is, in a way, like loving people – one might be able to love and admire some of them, but just can't live with them.

The vertical line is probably the most frequent element in ancient Indian architecture, finding expression mostly as decorated columns and pillars, both in Buddhist and Hindu architecture. Perhaps recognizing the power of the line, Ashoka built his pillars to propagate his *dhamma* and the message of Buddhism. When repetition is added to this vertical unit, we get a dynamic, virtual façade or division which is accentuated by the columns and column wall, for example in *mandapa* halls and the interior of the Karle *chaitya*. See description on Pillars in the next Chapter.

Sacred Space in Ancient Indian Architecture: Form and Meaning by Ashish Nangia

With respect to elements of space making in temples of Vijaynagar era, and how these Yali Pillars when treated with extraordinary ornamentations enhanced, beautified and lender unique character to the structure and identified the temples given impression of strength, stability and reliability. The volume of distinct spaces, movements and visual impact created by these pillars in temples gives an idea of the distinct identity of architecture to create a sense of group identities between those who built and those who inhabited or used these structures, such elements embody not just the earth or stone from which they were built, but the people and experiences involved in their Pillars (Stambha), Hindu Temple, Identity,

However, a linear repetition of the pillars begins imparting directions to immensely larger pillared narrow *Mandapas* halls and corridors of the temples. These pillars shows a strong dominance of vertical lines given by the roof line and overhang in contrast from the pillars defining directions for the square or linear spaces in temple. A Hindu temple is a symmetry-driven structure, with many variations, on a square grid of *padas*, depicting perfect geometric shapes such as circles and squares. Susan Lewandowski states that the underlying principle in a Hindu temple is built around the belief that all things are one, everything is connected. A temple, states Lewandowski, "replicates again and again the Hindu beliefs in the parts mirroring, and at the same time *being*, the universal whole" like an "organism of repeating cells". The pilgrim is welcomed through mathematically structured spaces, a network of art, pillars with carvings and statues that display and celebrate the four important and necessary principles of human life—the pursuit of artha (prosperity, wealth), the pursuit of kama (desire), the pursuit of dharma (virtues, ethical life) and the pursuit of moksha (release, self-knowledge).

At the centre of the temple, typically below and sometimes above or next to the deity, is mere hollow space with no decoration, symbolically representing *Purusa*, the Supreme Principle, the sacred Universal, one without form, which is present everywhere, connects everything, and is the essence of everyone. A Hindu temple is meant to encourage reflection, facilitate purification of one's mind, and trigger the process of inner realization within the devotee. The specific process is left to the devotee's school of belief. The primary deity of different Hindu temples varies to reflect this spiritual spectrum.

Pillars as movement guide: A series of *Yali* pillars when placed along a line creates and imaginary plane binding them in a plan setting up strong perspective establishing directions and inviting movements along them in the *Mandapas* and corridors of the temples. These pillars limit our visual field and serves as a barrier to our movement.

Pillars as focus of space: A pillars marks a point in space and makes it visible in three dimensions. Two pillars define a spatial membrane through which we can pass. They also mark and define the corners and edges of places creating marked focus points which express character through elements associated with certain influences. Such influences often go thousands of years back in history and culture. These pillars can be seen highlighting the focus on entrances and the exterior of the *Mandapas*

Pillars for definition of volume, space and subdivision of space: Three or more when not placed along the same line enclose space by acting as the vertices of an invisible polygon holding it together also in a linear arrangement placed parallel these forms of long volume of continuous spanning corridors In a composite arrangement in temple planning these pillars not only subdivide the main volume into many smaller ones but at the same time also help in the proper definition of subdivisions of places in *Mandapas* of the temples.



Jain Temple JAISALMER rooftop

Pillars as a modulator of facade: For example the *Yali* Pillars, when exposed as an elevational element, as fins, sun-brackets etc., scale, compose and modulate the façade due to their rhythm, verticality as well as sculptural quality. The proportions of these *Yali* pillars facade elements affect the orientation, flow of space, the quality of light coming in, the views, the wind circulation, and the shading provided in the *Mandapas*. Exterior facade with *Yali* pillars which have deeply carved patterns when exposed to sun minimizes the heat gain by providing shading due to texture. They also result in increased convective transfer of heat because of increased surface area. In summer in day time when the major heat source is Sun the exposed textured surfaces will be cooler than plain surfaces. In evening when ambient conditions are cool the increase surface area helps in cooling it faster. However, an extended surface will warm up faster than a plain surface under winter conditions due to low solar altitude, therefore the location in context of these surfaces is very important, and hence when these placed facing exterior of the *Mandapas* of temple modulated the facade giving it distinct identity of the architecture of *Vijaynagar* time.

Rhythm: Rhythm refers to any movement or characterized by a patterned recurrence of elements or motifs at regular or irregular intervals, when the pillars are placed in linear repetitions with changing distances it gives rise to a rhythm, a sense of continuity and consistency determined by their spacing and frequency of occurrence, the movement is of eye as we follow the recurring elements of motifs of these pillars or of our bodies as we advance through the sequence of spaces created by these pillars. Regular Rhythm is achieved by the artisans of this period by using these pillars artistically in long corridors and large



Mandapas ,of Vijaynagar temple architecture. Pillars play a vital role in defining the central space in addition to becoming the visible structural element. Its role varies from being a supporting element to that of space definer, façade rhythm modulator and also as defining the volume within, when arranging the bases and capitals at either end of the pillar-shafts, the older *Shilpis* never forgot the position which the sculptures of armored men, of *Yalis* or of lions and other such details had to occupy. The carved work on the column further enhanced, beautified and lender unique character to the structure and identified the temples given impression of strength, stability and reliability. The volume of distinct spaces, movements and visual impact created by these pillars in temples gives an idea of the distinct identity of architecture to create a sense of group identities between those who built and those who inhabited or used these structures, such elements embody not just the earth or stone from which they were built, but the people and experiences involved in their construction, holding special place in human memory giving distinct identity to structures of architecture

PILLARS [STAMBHA]–THE SUPPORTIVE ELEMENTS OF HINDU TEMPLES-*Ar. Meenal Kumar-Smt M.M.College of Architecture, Nagpur, India.*International Journal of Current Research, Vol. 10, Issue, 06, pp.70223-70228, June, 2018*

About the Author

The author has worked for 30 years in the human resources arena in India and abroad. He was Group Vice -President of MZI Group in New Delhi and has anchored Human Relations in Go Air and Hotel Holiday Inn; was General Manager-Health Human Resources at the Lata Mangeshkar Hospital and Medical college. Is currently Consultant to Gorewada International Zoo, Nagpur and visiting Faculty at the Central Institute of Business Management and Research, Nagpur.

In Sweden he anchored HR in Stadbolaget RENIA, SSSB and advisor to a multi millionaire.

He has studied in Nagpur, India where he obtained degrees of Bachelor of Science, Bachelor of Arts (Managerial Economics) and Bachelor of Laws. He has done his Graduate Studies in labour laws from Canada at the Queen's University, Kingston; a MBA from USA, and Doctorate from Stockholm University, Sweden. Apart from that he has done a Management Training Program in Singapore.

A scholar of the Swedish Institute, he has been an Edvard Cassel Fund and Wineroth Fund Awardee. A scholar for the Swedish Institute for 5 years.

In 1984 he was involved with the Comparative Labour Law Project of the University of California, Los Angeles, U.S.A. He was also visiting lecturer there. In 1985 he was invited by the President of Seychelles to do a study of the efficacy of the labour laws of Seychelles.

Author of a book on a Swedish human resource law, his brief life sketch is part of the English study text book of 7th Class Students in Sweden - "Studying English. SPOTLIGHT 7"- and 8th Class students in Iceland - "SPOTLIGHT 8- Lausnir."

BOOKS written by Dr Uday

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Doctoral thesis published by Almqvist & Wiksell International, Stockholm, Sweden

This is a first of a kind empirical study of both employees and business owners reactions of how efficiently a labour law was functioning in a country (Sweden). Adorns Stanford and Harvard University Libraries and granted Copyright by the Library of Congress, USA in 1990.

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Co-authored with Srishti Dokras, examines the parameters of creativity and how it will raise design quotients.

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REVIEW of Health Human Resource management

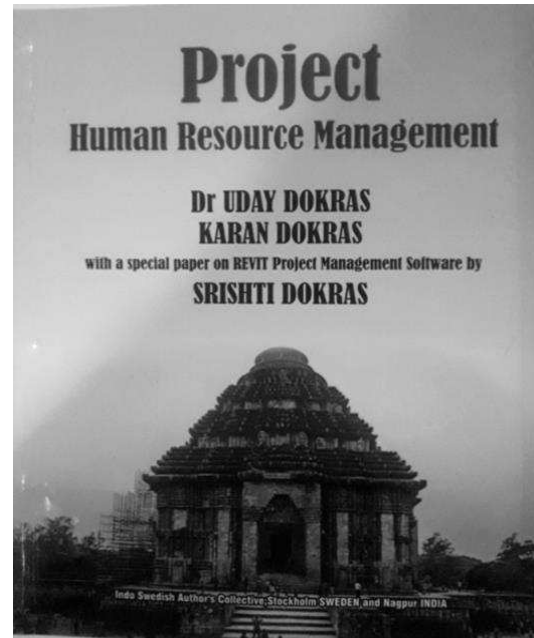
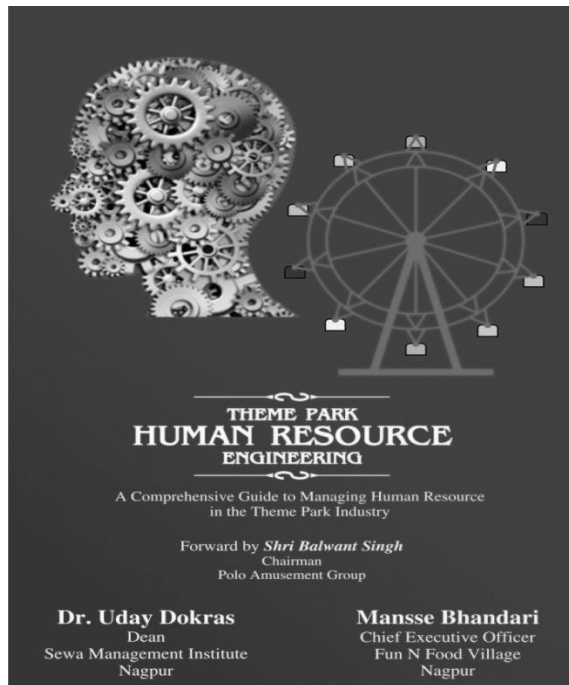
I am glad for this contribution to health human resource management by Dr Uday Dokras. As a medical practitioner and Head of administration of a large hospital, I see the need for a constructive approach that can be given to the human resource department of hospitals to follow and restructure/arrange/symmeticalize the workers. This is just that book. Amazing. Stimulating and the right thing at ther right time.

Dr Alpana Chimurkar https://archive.org/details/_201609/page/n9

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Book on 'Theme Park Human Resource Management' to be released on Mar 10



Representational Pic

Nagpur: A book on 'Theme Park Human Resource Management' written by Mansse Bhandari, CEO, FunNFood Village, Nagpur and Dr Uday Dokras, Dean of Sewa Institute of Management will be released at the hands of Balwant Chawla, Chairman, Polo Amusement Group, in a function to be held at LOUNGE, Chitnavis Center at 6 pm on Friday, March 10.

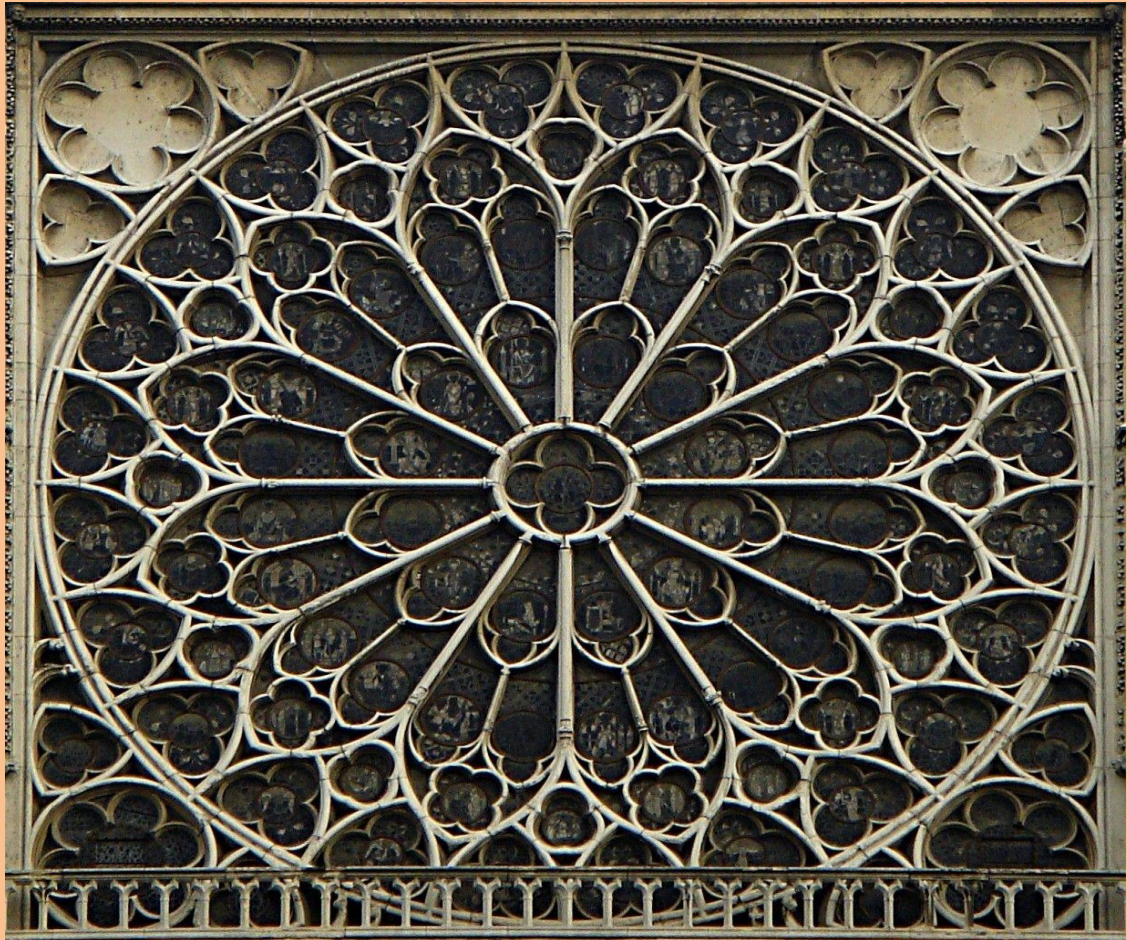
Pre Publication-REVIEWS

This collection of essays and articles are in fact semi classical "papers" that have been published before (most of them) and this compilation does justice to the originals as they have been re-edited and spruced up- so to say. The articles are not homogenous and take us to various geographies to describe the creations there. In fact, creativity is the forte of these places and Srishti describes the wonderous creations as well as underlines the creative element. Today's architecture are racially, ethnically, and economically diverse, with as many creative superlatives as the ancient ones.

The history of Hindu Temples spans centuries and centuries. How they spread to all corners of the world is a mystery the authors choose to unravel. Today's architecture is fertile ground for utopian planning, communal living, socially-conscious design, and integrated housing. And yet we have forgotten that our ancestors built "suburbs" like the Ajanta and Ellora or that the design of Rama's AYODHYA inspired creation of cities in Cambodia and Indonesia. Yes that far away. Makes you think!

See Angkor Vat and you will see Rama in his Ayodhya or Ravana in his Lanka. That is motive behind this effort and even though it is distilled clearly, the creations stand out in the writings and Hindu Temple Architecture gets illuminated with creativity.

Ann Järvinen-Head Librarian
STOCKHOLM UNIVERSITY, STOCKHOLM, -SWEDEN



MANDALA & ARCHITECTURE